

## The Week

HOME  
TUC at Blackpool: full report  
Oxford economists form new ginger group  
Fewer offers would reduce "mad rush" for entry  
The NAB plan: criteria and guidelines

OVERSEAS  
Commonwealth students meet in Melbourne  
South Africa backs down in race quotas row  
World philosophy congress in Helsinki  
New Polish unions should help select students

ARTICLES  
Jon Turney discusses the difficulties facing the Agricultural Research Council in the first article in a two-part series, 8  
Edinburgh Festival: Dan Gillan describes the growing involvement of students, and Karen Gold reports on a week of backstage life on the Fringe, 9  
Mind in science or science in mind? Richard Gregory discusses how our perception of experience has changed, 10  
Harold Hillman argues that a code of practice should govern the responsibilities of supervisors have to their research students, 11  
Town and Gown: Colin Radford argues that the barriers between universities and their local communities must be broken down, 12

BOOKS  
David Papineau reviews the three volumes of Sir Karl Popper's long awaited Postscript to The Logic of Scientific Discovery, 13  
Martin Davies discusses delinquency and Roger Silverstone language, images and the media (14), Derek Roper reviews An Infinite Complexity, a collection of essays on Romanticism (15) Richard Bessel discusses how historians have written about Hitler's Germany (16), and R. E. Pahl reviews two books on the use of biography in history (17)

NOTICEBOARD  
CLASSIFIED INDEX  
OPINION

Bernard Crick reflects on the shifting balance between official and fringe festivals in Edinburgh  
Official secrets, and secrecy; and Don's Diary from David Carter of the University of Surrey, 26  
Letters on architecture "peer review" and technology research; and "Union Views" from Naffie and the NUS on the NAB plan for polytechnics and colleges, 27

## Next Week

Martin Jay on culture and hierarchy  
The NAB plan: institution-by-institution analysis  
Colin Harber on incomes across generations  
Right pages of reviews of new science journals

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## A tale of two myths

There are two stereotypes certainly, myths probably, about Britain's universities that compete for the attention of lay people, including those most powerful of laypeople, the politicians who decide how much money universities shall have.

The first is a charge and runs roughly like this: "Oxford and Cambridge, which have such a tight grip on the commanding values of all universities, were the product of a pre-industrial world and have stubbornly and successfully resisted incorporation in the modern practical world. The civil and redbrick universities started off all right as down-to-earth institutions with lots of students coming to evening classes on the tram or trolley bus, but they too have been seduced by the impracticality of some higher academic mission."

"The technological universities have either (for here there is a choice of charges) abandoned their roots in industry in the struggle for academic esteem, or been punished by the University Grants Committee in July 1981 for remaining true to their industrial origins. Whichever is true, the conservatism of university values is exposed. Although there are degrees of guilt, all British universities have been infected by ivory-towerism; they disdain relevance and are suspicious of the practical world."

The second stereotype-myth is very different. It goes something like this: "No nation can expect to keep up in the economic race if it does not invest in universities. Universities are the source of scientific discovery on which future technology and so wealth depend. They also supply the nation's needs for highly trained manpower. More and more knowledge itself will become a resource as important as labour or machines or energy. So the institutions that produce knowledge, preeminently universities, must be seen as increasingly crucial to national survival and success."

These two popular views of universities, as ivory towers and as science factories, have lasted for predominance ever since 1945. But the view in the ascendant has always been qualified by the opposite view in the descendant. So although the 1950s and 1960s appeared to be a period when the second view triumphed over its rival the latter did not lose every shred of influence over popular attitudes to universities. The Robbins report, which secured political endorsement of the most optimistic claims of the universities, was qualified by the binary

policy, which reflected the then descendant view of universities as ivory towers.

Today it is the other way round. The ascendant stereotype is the first; universities are regarded as insufficiently practical. So their graduates have been cut into more entrepreneurial behaviour by carrot-and-stick rumours of privatization. Yet the second stereotype, although in the descendant, is still there. The science budget has been protected from serious cuts and there are authoritative whispers that the Prime Minister himself is concerned to protect the conditions for scientific excellence.

So the hopeful conclusion may be that just as in the 1960s the "ivory tower" stereotype acted as a brake on the more exuberant expansion of the universities, in the 1980s the "science factory" stereotype may act as a brake on over-enthusiastic contraction. We only consider that that has affected the relative weight attached to these two stereotypes. On dignified public occasions, as for instance when ministers make speeches, the "science factory" stereotype is emphasized; on less dignified private occasions, as for instance when real political decisions are taken, the "ivory tower" stereotype seems to be more prominent.

Universities constantly complain about the lack of an adequate planning horizon, although their expectations of how distant that horizon should be have been forced by circumstances to be comparatively modest. But the absence of such a horizon reflects not only the chaos that affects all public expenditure in a time of economic uncertainty, but also the volatility of the universities' public image(s). It is not simply a case of what can be afforded, as the more sympathetic ministers in the present Government try to insist, but of what is the public's view, in the view of the Government and the section of public opinion it represents.

Universities cannot look forward to any stability in either income or planning so long as their public worth is defined in terms of such crude stereotypes. Governments under the relentless pressure of priorities are bound to respond to the solidity or alternatively softness of the universities' public reputation; "science factories" are so clearly more worthy of support than "ivory towers".

The first lesson, for universities, therefore, is that they should not be

afraid of image making. We live in a world of images that are manipulated with frightening professionalism and their apparent simplicity, even crudity, should not disguise their power and sophistication. Although it is easy to understand their instinctive reluctance to launch themselves into a public relations world, universities cannot afford to be fastidious. They need their own professionals, their information and public relations officers, more than ever. If universities do not make their own images, in an increasingly professional and self-conscious way, these images will continue to be made for them, always crudely and often hostily.

The second lesson is an extension of the first. The universities should vigorously assault the stereotypes and myths which have imprisoned their public reputations. The "ivory tower" myth in particular needs to be critically examined because it is so widely if rather surreptitiously believed. It is the kind of myth that politicians, elected and unelected, usually with an impeccably anti-practical university education themselves, are fond of reinforcing. Yet there is remarkably little empirical evidence to support it.

Industrial companies, particularly and sadly those from overseas, do not behave as if they believe that British universities have little of practical benefit to offer. The output of scientists and technologists is more than respectable, particularly in quality, compared with the output of rival nations. British science and engineering are of acknowledged international excellence.

But the "science factory" stereotype is in its own less virulent way also a myth. Excellence in university research is not always effortlessly translated into excellence in industrial production. "Knowledge" may be crucial in the society of the future, but not just the advanced knowledge produced in universities. Social and economic progress require the understanding produced by the humanities and social science, just as much as the hard knowledge produced by the natural and applied sciences.

Universities have everything to gain from a more sophisticated appreciation among the public and their politicians of what universities are really like. Such an appreciation might dent the "science factory" myth, but it would demolish the "ivory tower" rival. Building that appreciation may be their most important task in the 1980s.

Yet the DES and local authorities have a major part to play in ensuring that the YTS is incorporated into a coherent structure for 16-19 education and training. Further, education colleges would benefit and so too would young people if the DES was prepared to give a more positive lead rather than leaving the running to the MSC and the Department of Employment.

Young people are confused and quite rightly. No one has been able to advise them as to whether their prospects are better by staying on at school or further education college or through joining the YTS. Some fear that unless they get on to the YTS now their future employment prospects will be reduced, and judging by some employers' intentions they may be right.

Laurie Taylor



HELLO.  
Oh hello. Is that Professor Lapping?

Yes. Lapping speaking. Who's that?

Crayke, Professor Lapping. Crayke?

Yes, we met earlier this year, February. Did we?

Yes, Professor Lapping. At the interview. The open day for admissions. You were very important with the essay I'd written on language and thought.

Ah yes. Crayke. A fine piece of work I thought. Very impressive. Interesting ideas on metaphor and metonymy.

That's right. And at the end of the interview you were kind enough to offer me 2 Bs and a C.

Yes indeed. Well, Crayke. What can I do for you today?

Well you see, Professor Lapping, had a bit of bad luck during the actual examination period.

I'm sorry to hear that. Crayke. Nothing serious, I hope.

Well not too bad, sir. But as mother passed away on the eve of the first examination. And then my father unfortunately decided to commit suicide just two days later.

All of which meant that I was left more or less single-handedly to cope with the seven younger children.

Do go on, Crayke. What are you trying to tell me?

Well, sir. Let me come straight to the point. What with one thing and another I'm afraid that I was unable to obtain one B and two Cs.

Yes.

And... well... I was wondering Professor Lapping, if there was any way you might still consider me an undergraduate place in your department.

I'm sorry, Crayke, but it does look as though you seriously mismanaged the situation here at the moment.

Don't you realise, Crayke, that I'm now a straight two Bs and one C department.

Well I thought that what with... And what's more there are four students this year with straight As. Four with straight As. That's four with 15 points each. Four with fifteen each.

It's just that...

And there's only one D in the place and that's a severely handicapped mature student with two As to go with it. So even there we've got a solid 12 points.

I do quite appreciate all that but I was wondering...

All of which means that we've an average A level score for the department of 11.74. 11.74. That's 63 up on last year.

I just thought that what with the satisfactory interview and the good home circumstances...

I'm very sorry indeed to hear your news, Crayke. Very sorry indeed. But we're not talking about individuals here. Oh no. We're talking about something much more important. Do you realise that?

Yes.

We're talking about educational standards.

# The Times Higher Education Supplement

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## Sir Keith tries to calm fear of more university cuts

by Ngalo Crequer and Paul Flather

Sir Keith Joseph, Secretary of State for Education and Science, this week attempted to quell fears of a new round of cuts in the universities following the publication of new guidance for the University Grants Committee.

Vice chancellors expressed anxiety about Sir Keith's warning in his letter to Sir Edward Parkes, chairman of the UGC, that the committee should consider its response to reduced as well as level funding. It is to discuss the implications of its guidance at its weekend retreat later this month.

But Sir Keith told the TES this week that no final decisions had been made, although he was very keen for universities to find more of their money from the private sector. He stressed that no instructions had been given. He was simply asking universities to take stock through their own channels.

He expects to hold more detailed talks within the next few days with Sir Peter Swinnerton-Dyer, who takes over at the UGC next month.

In his speech to the science seminar presided over by the Prime Minister, Sir Keith said he wanted to report that the Government had asked the UGC and the National Advisory Body to consider a more selective approach to the distribution of public money between and within institutions.

"That possibility takes very few words to express," he said. "But it could be pregnant with a fair amount of useful change."

Next month the universities will be asked to take part in a new rationalization to make them more efficient, more applied and less dependent on the public purse. But unlike the 1981 cuts, from which the universities are just recovering, the Government rather than the University Grants Committee will pilot the strategy.

Firmly back on the agenda is the idea of a three-tier system, with the best universities, or the best departments, concentrating on research and the least prestigious emphasizing teaching.

Sir Keith is clearly acting on the policy laid down last July which said that ministers would take more responsibility for strategic planning. He made it plain that for the new review period he wants an end to the 1981 UGC commitment to protect unit costs, at the expense of student numbers.

He asked the committee to consider its response to level funding and also to a progressive reduction in funding of five to ten per cent per student by 1990 and a further five per cent by 1995.

But he says these figures do not reflect any present Government intention. He wants the UGC review to be a progressive planning up to the end of this Parliament.

The UGC has been allowed one year to hold new discussions with the universities and come up with a new master plan by October next year. But again unlike 1981 Sir Keith has ordered that the consultation should be "as

open and wide ranging as possible".

The details of how the dialogue will be carried out and the review conducted will be considered at the UGC's residential retreat at Oxford at the end of this month. The great debate will then begin in October.

Mr Stuart Johnson, Leeds director of education and a member of the University Grants Committee, this week told the Standing Conference of University Information Officers that he expected an announcement within the next 18 months on the relative of student targets. "No one is suggesting total abolition but a degree of latitude is being seriously discussed," he said.

He thought that in the universities there would be more full-time students and in the public sector more sandwich and part-time students.

He said that Sir Keith wanted to maintain the level funding for the universities but there were other members of the Government who were canvassing a five to ten per cent cut over the next ten years. Moves towards selectivity and earmarking in higher education was becoming a major issue and would have to be faced seriously.

Mr John Akker, deputy general secretary of the Association of University Teachers, said: "We welcome any consultation that is put forward by the Secretary of State about the future of higher education but we are appalled by some of the assumptions about public expenditure."

Sir Keith's letter, page 5  
Leader, back page

by John O'Leary

Members of the board of the National Advisory Body, meeting this week for the first time since the plan for a redistribution of places in colleges and polytechnics was issued, signalled their intention to modify some of the criteria which they themselves set.

The board will not discuss the plan until its residential meeting next month in Sheffield, but doubts were expressed at Tuesday's meeting about elements of the proposed distribution and about the new funding system recommended to accompany it. Instead of finalizing its recommendations in Sheffield, the board may now set aside further meetings.

Following a meeting between representatives of the Committee of Directors of Polytechnics and the Council of Local Education Authorities earlier this year, the CDP chairman and director of Bristol Polytechnic, Dr William Birch, has written a paper pursuing the subject and sent it to chief officers of the Metropolitan and County Council Associations.

Dr Birch's paper, written on behalf of the CDP, argues that at least some polytechnics should be released both from direct financial and academic control.

Royal Charters designed to emphasize polytechnics' special interests in part-time and vocational educational degrees instead of being dependent on the Council for National Academic Awards.

Corporate status, such as the five inner London polytechnics now possess, would allow them to control their own staffing, keep any profits made, and apply for charitable status to exempt them from taxation.

The CDP has made no secret of its desire to throw off the day-to-day control of local authorities over polytechnics. It supported an earlier Government plan to remove polytechnics from local authority control and has always been unhappy with the compromise embodied in the National Advisory Body.

But for an inventor in a

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A timetable has also been drawn up to review this year's exercise during 1985. Modifications designed to correct errors and adjust to changed circumstances will be put forward next spring for inclusion in the 1986/87 advanced further education plan.

Briefing, pages 8 and 9

by Karen Gold

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# Money sought to end production crisis

by Trina Francis

Government aid is urgently needed to train and employ more production engineers to help Britain out of a disaster in manufacturing, says a new report.

The Heads of University and Polytechnic Departments of Production and Engineering have found that current output from first-degree production engineering is fewer than 500 graduates a year. It should be at least 1,500 says their report in the latest issue of *Production Engineer*.

The consortium's joint chairman, Professor Nigel Corlett, said the only future for Britain was to make and sell goods abroad competitively.

For the first time in 200 years, the country had a trade deficit in manufactured goods and lost 10 per cent of its manufacturing capacity. "For a nation that depends so heavily on its manufacturing industries for its wealth creation, that is nothing short of disastrous," he said.

"People will argue that we can't make things economically in Britain because of high taxes, high wages, the high pound and so on, but they are just excuses."

Japan has overmanning problems. Germany has high wages and Sweden has high taxes. Yet they all manage to compete successfully. Neither do they assume that they will give in to foreign competition and close their manufacturing sectors."

The report, commissioned by the Institution of Production Engineers, says the cost of expanding the supply of

graduate production engineers could be as high as £50m initially, with £5m a year recurrent costs for buildings and equipment.

Professor Corlett proposes a more active role by the Government in promoting the need for more production engineers, increasing training opportunities and then ensuring the increase in qualified graduates is absorbed by industry.

"The contemporary view that manufacture didn't need any skill, just experience, was a mistake," he said. "Production engineering is a broad discipline involving all the resources and skills needed in manufacturing and properly trained production engineers can do the job in any industry, given an understanding of the technology."

"It is perhaps not too far-fetched to say that only in the way proposed by the consortium can the manufacturing sector be re-established to produce the wealth to support this country in the next century."

Two booklets containing new recommendations for the training of technicians and engineering graduates have been published by the Engineering Training Industry Board, following its decision to introduce a certification scheme in both categories. They emphasize the achievement of standards rather than duration of training and deal with both off-the-job training and hands-on experience, as well as the role of companies in developing graduates. Copies available from ETIB Publications, PO Box 75, Stockport, Cheshire, SK4 1PH, at £2.50 each.

## Relevant help sought from Sir Keith

by Patricia Santinelli

Graduate careers advisers called on Sir Keith Joseph, Secretary of State for Education, this week to clarify the position of graduates with "non-relevant" degrees who wish to train as teachers.

Under new criteria for teacher training courses being considered by Sir Keith, graduates who hold degrees in subjects such as philosophy, anthropology, sociology, archaeology law and politics would be barred from taking PGCE courses because these are not considered relevant to the school curriculum.

In a letter to Sir Keith, Mr Robin Porter, chairman of the Association of Graduate Careers Advisory Services says that a restriction will only make it harder to find good teachers.

He adds that rather than restricting the field, one should rely on the expertise of admissions tutors and practising teachers to select the best candidates available.

"What is now very clear is that a definitive statement is necessary from you so that good students are not discouraged from applying and institutions are clear about the selection criteria to be applied," Mr Porter says. The association's decision to write to Sir Keith follows a recent conference motion which unanimously deplored the setting up of a restriction, and particularly objected to the introduction of new criteria without adequate notice.

The motion said that there was no apparent logical or educational reason for moving by the Secretary of State effectively to restrict entry to those who have studied relevant school subjects at degree level.

The association has also written to the Politics Association, the British Sociological Association, the Royal Institute of Philosophy and the Law Society to warn them about the implications of the new criteria for their respective graduates.

It has asked them to protest to Sir Keith by this month if they disagree with the introduction of the restriction.

The GCAS also warned the Advisory Committee for the Supply and Education of Teachers earlier this summer that the relevant degree criteria were applied rigorously, this would diminish the number of teachers available at a time when demand will have risen by between 16 and 20 per cent.

## Unions split on call for shift from military research

A united appeal for more Government help for civil research in the universities and polytechnics came from the Trades Union Congress in Blackpool last week.

But the expression of public unity masked continuing differences between the university lecturers' union and the union representing Ministry of Defence research staff over the transfer of resources from military to peaceful research.

The Association of University Teachers wanted an explicit policy for a massive shift in resources against the wishes of the Institute of Professional Civil Servants which is concerned at the job implications for its members in MoD research establishments.

The AUT eventually yielded to pressure from TUC general secretary Mr Len Murray and agreed to support a watered-down motion simply seeking more money for civil research to strengthen Britain's research base.

## New peace studies syllabus

The Government-backed British Atlantic Committee which exists to promote the North Atlantic Treaty Alliance this week intervened in the debate over peace studies.

It has produced its own peace studies syllabus, *Peace and Conflict Studies*, which is to be distributed to teachers training in institutions, colleges and secondary schools.

BAC chairman Mr Harry Greenway, MP, commended the handbook to both professionals and laymen and to all who are interested in putting

over peace studies arguments in the classroom and outside it in a balanced way.

Too often parents had been unhappy with what they felt was a lack of academic and political balance in current courses of study in this area.

The BAC is largely Government funded, receiving £45,000 grant-in-aid from the Foreign Office last year.

A syllabus in *Peace Studies from the British Atlantic Committee*, 30A, St James's Square, London SW1Y 4JH.

## Architect courses in the best of health

The first complete year of planned mid-career educational programmes for architectural staff working for the National Health Service produced events which involved more than 1,500 staff in training.

The year's programme was the outcome of preparatory work by the Institute of Advanced Architectural Studies continuing education unit at York University. The unit was established with funding from the Department of Health and Social Security to develop mid-career educational opportunities for NHS regional offices in England or other NHS regions.

The planned programme was developed on the basis of a survey of the needs of the regions that their staff

education provision would be improved if it was done on a planned rather than an ad hoc basis.

The unit's annual report shows that last year it ran a total of 65 events which were attended by 1,514 staff, who included architects, land surveyors and interior designers as well as non-NHS consultant architects and clerks of works.

The new emphasis on planning has meant that programmes have tended to mirror more the specific needs of the regional offices and most architects' practices designed for them.

Mr Greenway said that the unit's staff, stressed in the report, had made a major effort to put into planning and staff made possible through

## AUT considers Leverhulme protest

by Ngalo Crequer

The Association of University Teachers is considering resigning from the Society for Research into Higher Education because it is disappointed over the recent Leverhulme study.

The Leverhulme report *Excellence in Diversity* recommended an end to the specialized three-year honours degree, the introduction of some student loans, and the external monitoring of standards in the universities.

The AUT's education and development committee considered, as a result, resigning from the SRHE, but instead has asked the executive to prepare a paper for the next meeting later this month.

Professor Bill Wallace, chairman of the committee, said: "I think there was a feeling that a lot of time and effort had gone into this but all that was produced was Mrs Shirley Williams' 13 points by another name."

A number of members felt that the study had produced conclusions contrary to the union's aims.

A special meeting next Thursday will consider the paper, and the committee will also discuss the situation on student numbers and AUT policy on cross-institution cooperation.

The AUT is an ordinary member of the SRHE and pays £70 a year for membership. It is extremely unlikely that it will in fact leave the organization, particularly as the Leverhulme study does not represent the corporate view of the SRHE.

The development trust is intended to fund four other projects: a third in engineering; a centre for modern Scottish studies; a unit to study economic and social changes in the north of Scotland; and an expansion of the university's anthropology museum.

## News in Brief

### Computing network down on the farm

The Agricultural Research Council laid the base for a new computing network to link agricultural research establishments and universities across the world.

The new international system, within the next two years, connects sites with a central computer at Harpenden, Herts. Three institutes are placed on the system, AGREX when it was launched last week at National Vegetable Research Station, Wellesbourne.

The National Institute for Research in Dairying at Reading, Berkshire, the Rothamsted Experimental Station at Harpenden, are the others joining the new VAX model 11/750 computer which form the roots of the network. The computing centre, directed by Peter Chandler, will update software, advise on computer equipment purchases and be responsible for training.

### First sighting

Aberdeen University is advertising a chair in ophthalmology, following the success of its development fund, launched in January last year with a grant of £5m to enable the university to fund innovations despite its 25 per cent cut.

The fund has now reached £2m and the university is poised to set up an ophthalmology department which will research the causes of blindness in severely impaired vision. However, the university is stressing that more money is needed for the department to do its work.

The development trust is intended to fund four other projects: a third in engineering; a centre for modern Scottish studies; a unit to study economic and social changes in the north of Scotland; and an expansion of the university's anthropology museum.

### Paid-up subs

The Libyan People's Bureau has paid an outstanding bill of £400 which led to the expulsion of 10 students from Leith Nautical College.

The college expelled the Libyans who were studying navigation and marine engineering after there was no response from the national Libyan shipping company or the Libyan Embassy to repeated invoices for tuition and residential fees.

### New writing

The Council for Educational Technology has announced a national open competition for students and professionals in education and training, to £400 Bynum Jones prize and 18-25 and 25-plus for essays on topics such as the development of open learning and objections to educational technology. The closing date for registration is January 6, 1984 and for entry March 31, 1984. Details from Mr Wright, CET, 3 Devonshire Street, London W1N 2BA.

### Trusted task

Sir Rex Richards is to become director of the Leverhulme Trust when Sir Ronald Tress retires at the end of 1983. Sir Rex has been warden of Merton College, Oxford, since 1960, and was vice-chancellor of Oxford from 1977 to 1981, and Dr Lee's professor of chemistry there from 1967/68. The Leverhulme Trust contributes £4,500 a year to research and education through research and teaching fellowships and studentships.

### Economic series

Lord Balogh, the economist who has inspired a new political economy group at Oxford University, is also on the editorial board for the forthcoming series of books to be published by the Oxford University Press, the *Political Economy Library*.

THE TIMES HIGHER EDUCATION SUPPLEMENT 16.9.83

## David Jobbins reports on the Federation of Conservative Students' council

# Conservative conference reaches chaos

A severe ideological conflict continues to dog the Federation of Conservative Students and endanger its standing with senior members of the parent party.

The report to the Conservative Party on the federation's half-yearly council in Cambridge last weekend is likely to bear out fears that constitutional reforms and a switch in control from the extreme right to the moderates has not restored stability.

## Government's policy is defended

A defence of the Government and the Conservative party against charges of hostility towards higher education came this week from Mr Peter Brooks, under secretary of state for higher education.

He told Conservative students in Cambridge that at 13.5 per cent, the age participation rate was the highest since the 1960s, when figures were distorted by the inclusion of teacher training, that the qualified participation rate was also the highest ever at 88 per cent and that there were 50,000 more full-time students in higher education than when the Government had entered office in 1979.

He promised that the Government would produce the coherent higher education policy which the Leverhulme report had said had been missing for some years.

"I would be embarrassed if this Government left office without rectifying this vacuum and did not make sure there was a coherent policy in place during the lifetime of this Government," he said.

The policy would emerge from a departmental review of student numbers and units of resource, the University Grants Committee's own review, the National Advisory Body's planning exercise in the public sector and the debate between the NAB and UGC, he said.

Mr Brooks underlined that the present NAB proposals for college and course closures or contractions might be modified. "There is a considerable process of consultation which has to go on until the final decision at the end of the year," he said.

But he added: "If any cut is restored it is going to be at the expense of someone else. I am reasonably confident that at the end of the exercise we will have conducted a good exercise in

The conference became chaotic on several occasions, culminating in the unthinkable in Conservative circles - a walkout by some of the delegates as a Government minister was called to speak.

At one stage elements were warned that they would be ejected if they persisted in shouting from the back of the hall.

The moderates won control six

months ago but have a tiny majority on the national committee. The right, whose leaders' philosophy is moulded by the virulently anti-interventionist Adam Smith Institute, sensed also that the moderates had only the slimmest of majorities among delegates. They seized every opportunity of demonstrating their ability to challenge what they regarded as a soft line on economic and social policies.

The official report will show that the

right succeeded in blocking a key constitutional change needed as a final safeguard against electoral irregularities, which were the subject of an official inquiry by the parent party.

It may also explain that excessive time spent on at least one secret ballot was due to the disappearance of voting credentials lost by a moderate delegate and later seen in the possession of a right-wing leader who told the council he could not remember whether or not he had kept it.

Twice as much time as scheduled was devoted to procedural wrangling over the committee report and only one of ten motions submitted was debated, but voting could not be completed.

The motion, which stood some chance of being passed, would have endorsed the view of Paul Goodman, the federation's chairman, that the organization should build up its activity in the further education colleges and defend the government's Youth Training Scheme against criticisms from Labour students. In the debate it was clear that many right-wingers distrusted the YTS as an unwarranted intervention in the free market.

The lack of time was not entirely unwelcome to the moderates. It meant that the right lost the chance to speak publicly on their demands for restoration of capital punishment, return of the birch, castration of rapists and child molesters and an embargo on the FCS taking part in anti-racist campaigns.

The federation's leaders were reluctant to discuss the events, but Mr Phil Pedley, chairman of the Young Conservatives, who was present, accused a "vociferous minority" of deliberately disrupting the meeting.

"These people are supposedly Government supporters but the whole tone of their comments is against Government policies. To walk out on a minister shows gross discourtesy and is not going to do the standing of either the FCS or the YCs with the party or Government any good at all," he said.

He chaired the National Union of Students for supporting causes such as the Campaign for Nuclear Disarmament which were "clearly antagonistic" to the Government when he detected it wished to establish a dialogue with ministers.

national rationalization."

Mr Brooks indicated that the Government was soon to take a tough line on ultra vires activities by student unions. Letters reminding unions of their legal obligations under charities law and the "inappropriateness" of spending money on purposes not related to their student union tasks would be sent out.

He chaired the National Union of Students for supporting causes such as the Campaign for Nuclear Disarmament which were "clearly antagonistic" to the Government when he detected it wished to establish a dialogue with ministers.

considering such questions as the length and intensity of courses, the balance of provision between modes of study and the effort being devoted to new approaches to teaching and learning.

b. The Government would like to see a further shift towards technological, scientific and engineering courses and to other vocationally relevant forms of study throughout higher education. I should welcome advice on how the universities can contribute to bringing this about, and how the question is best approached. I should be particularly interested to hear what timescale at what cost, having regard to the existing physical capacity of the universities and to the scope for greater efficiency and productivity; and to student demand and the scope for innovation.

c. I recognize that the committee is concerned with the well-being of teaching, scholarship and research across the whole range of disciplines, and that these all have their legitimate claim on resources. But in the light of concern expressed in recent reports I hope that the committee will consider what measures might be taken to increase the resources devoted to fundamental scientific research and to applied research and development, and to encourage their most effective use, for the sake of the quality of our science and for its contribution to the economy. In view of the pressures on public expenditure, greater selectivity in the funding of research activity both within and between institutions may be necessary. I should, in particular, value the committee's views on the propositions that the contribution through recurrent grant to the dual support system should be based on greater specificity of funding, possibly involving inter alia recognition of institutional differential success in securing research money from outside sources, especially from industry and the research councils; coordination with the research councils should perhaps be stepped up, and indeed the committee might allocate some of the funds at its disposal only after joint consideration with the research councils of individual authorities' research plans.

d. The committee is aware of the forecast of demand for higher education opportunities in the 1990s. It is important to try to ensure that across higher education as a whole the full range of opportunity continues to be provided, and that it is

own potential for future development and of the means by which standards are to be maintained and enhanced.

6. I welcome your intention to keep in touch with the National Advisory Body, I am sure that it is essential that the committee and the NAB cooperate in the parallel exercises on which they are embarked and I am accordingly sending a copy of our correspondence to the chairman of the NAB board. Much in the committee's exercise will also be of relevance to the research councils and I am therefore sending copies of our correspondence also to the chairman of the Advisory Body for the Research Councils and to the heads of the research councils.

7. Finally, I hope that the committee and the universities will conduct the process of consultation in as open and wide-ranging a manner as possible. As a contribution to the debate I am arranging for this exchange of letters to be published.

Yours sincerely  
KEITH JOSEPH

## Adult job training 'out of date'

by Trina Francis

School leavers are outstripping mature office workers in the race for jobs because training organizations are failing to keep pace with new technology, an education conference has been told.

Bodies like the Manpower Services Commission were teaching adult job seekers the skills for yesterday's jobs, Dominic Delahunt, told the Education Centres Association's annual conference at St Paul's and St Mary's College, Cheltenham.

The conference proposed a revision of adult training courses and a more practical approach to job training by not only professional organizations, but also local councils and community centres.

Mr Delahunt, the association's secretary, said that in a grim employment climate, mature people, particularly women office workers, were being squeezed out of the jobs race because of inadequate training. School leavers with some knowledge of computer technology, were more likely to get secretarial or clerical positions.

Youth training schemes were coping well with demands for courses in traditional trades, such as hairdressing and the food industry trades, but courses in other fields, like office skills, were often out-dated.

"In some cases, the large training organizations are preparing people for yesterday's jobs," he said. "We would like them to review their courses but we would also like to see a more active role by local councils."

It was up to councils to realize the need for better job training and channel more resources to community projects for the unemployed.

"There is no doubt that those involved in job training have the best of intentions," he said. "But organizations like the Manpower Services Commission must make a constant effort to keep up to date."

## THES PEER REVIEW

The THES has undertaken two surveys to discover how academics in eight disciplines regard the standing of their subjects. The results, giving both teaching and research ranking in architecture, chemistry, civil engineering, economics, French, history, physics and politics, were published in the THES of 3.12.82 and 8.8.83. The two reports are now available in one six-page reprint (four pages of editorial matter) price 80p.

Inquiries should be addressed to  
Frances Goddard, THES Peer Review  
The Times Supplement  
Priory House, St John's Lane, London EC1M 4BX.

This price includes postage and packing within the UK but not Red Star or airmail delivery.



Overseas news



Eiffel Tower sit-in during medical student's campaign

French battle at an end

from Guy Neave

PARIS Significant changes in the structure of medical studies in France were placed on the statute book last week, thus bringing to an end the bitter quarrel between the government and medical students. The uproar, which united medical students and interns, lasted for the first three months of this year.

The main source of grievance among interns was the government's proposal to introduce an examination designed to sort out those who would be admitted to specialized training and those destined for general practice.

Most of the interns' demands have been met by the decree, published on September 7. Students are to be given a wide choice between general medicine, public health specialties and further medical research.

Among the more notable improvements are new provisions for research leave, a sore point earlier this year. In future, students undertaking research will be able to ask for up to two years leave, either in France or abroad.

US grants poet political asylum

Mr Dennis Brutus, the black poet and activist-scholar exiled from South Africa, has been granted asylum in the United States after a tiresome two-year court battle with the American immigration authorities.

In Chicago, a federal judge determined that Mr Brutus, a critic of South Africa's apartheid policy, had ample foundation for his fears of assassination should he return to that part of the world. The Immigration and Naturalization Service had thought to have him deported using classified data that the government withheld from Mr Brutus and his attorneys.

Spelling it out

Students seeking admission to the University of Alberta will soon have to pass a writing test before their application will be approved. "We can no longer tolerate writing incompetence among our graduates," said academic vice-president George Baldwin.

The university has administered a mandatory writing test since 1980, but there was no admission or graduation requirement attached to it. Those students who failed, some 50 per cent, were placed in a remedial programme and then re-tested.

Stanford apology

Stanford University has issued a formal apology to a former Congress member for violations of his academic freedom while he was a guest lecturer in California last spring.

Mr Paul McCloskey was brought to Stanford by the Associated Students of Stanford University to teach a course entitled *The Congressional Decision-making Process, 1964-1983*. Part of his course concerned peace initiatives in the Middle East.

The students threatened to discharge Mr McCloskey or cut his retainer fee if he did not hand them *de facto* control over the reading list and guest speakers' schedule. Stanford's provost, Mr Albert Hartzoff, wrote that he will suspend future accreditation of the organization's courses until its present rules are changed.

Health problems

A study by researchers of the National University of Mexico (UNAM), has revealed that health problems are the chief cause of student dropouts. Categories of ailments include: chronic ailments, chronic ailments throughout Mexico, fifty per cent of the sample population has visual problems and 25 per cent suffer from malnutrition.

The health report, prepared under the direction of Dr Francisco Herrera Guevara, director of student medical care at UNAM, said that virtually all students admitted to the university suffer from health decay and poor nutrition caused by malnutrition.

Student exchanges 'need encouraging'

from Geoff Maslen

MELBOURNE A permanent Commonwealth student organization may be established if sufficient funding can be arranged, delegates to this month's Commonwealth student conference decided.

Although the students identified the Commonwealth as "a product of our colonial history" they nevertheless acknowledged it had possibilities in fostering international student links. They will approach the Commonwealth secretariat and the Commonwealth heads of government to discuss the prospect of setting up the organization.

The student conference ran for four days at Melbourne University and was the first of its kind for more than a decade. Delegates decided to hold a similar affair in New Delhi within two to four years. Efforts will also be made to produce a regular newsletter to keep student groups in contact with each other.

The conference drew delegates from 22 Commonwealth countries, including student leaders from Africa, Asia, the Pacific, Canada and the United Kingdom. It was sponsored by the Australian Union of Students and the \$60,000 costs was covered by governments, institutions and student groups.

One of the key issues debated by students at the conference was the matter of student movement between the countries for educational purposes. A communiqué released at the end of the conference stated that student exchanges between countries fostered international understanding and were one of the most useful forms of foreign aid. But student mobility was restricted by the fees charged by host countries, the imposition of quotas to limit access, and the high cost for many students in living in overseas countries.

The conference called on the Commonwealth heads of government to expand aid scholarships; to establish a common fund to increase tertiary education provision at all levels of

study; to freeze differential fees in host countries between those charges for home students and those charges for those from overseas; and to develop a policy of increasing women's access to scholarship schemes and tertiary institutions.

Referring to the north-south dialogue, the communiqué stated that current aid programmes in many cases increased the inequalities within developing nations between the rich and the poor and between men and women. The communiqué said that aid to developing countries should not simply concentrate on capital works and supplying technology, but should also aim to share information and skills.

On nuclear disarmament, the conference described as a "crime against humanity" the massive expenditure on nuclear weapons while millions of the world's peoples were starving, homeless and jobless. The conference declared its support for a nuclear-free and independent Pacific and called for an end to nuclear testing and dumping, uranium mining, military bases and the presence of nuclear powered and armed vessels in the Pacific.

As expected, particularly when the South African delegate to the conference was an exiled former student, the communiqué roundly condemned the apartheid regime in South Africa and Namibia and the repression of the black majority there. The conference called on Commonwealth countries to sever all diplomatic, economic and cultural ties with the South African regime and the imposition of multilateral trade embargoes.

At the same time, the conference condemned discrimination against aboriginal people in Australia. This O'Neill, a black Australian, who declared that the problem facing the country was not to do with aborigines, but with whites. What were black Australians to do with the 15 million white immigrants who had invaded their lands, he asked.

Plan to save on chairs

from Lindsay Wright

WELLINGTON In the biggest staff restructuring yet at a New Zealand university, Victoria University has adopted plans to abolish or downgrade 20 of its 70 professional posts over the next five years.

The move follows advice from the University Grants Committee that continuation of Victoria's existing level of chairs could have very adverse effects on all the universities in the forthcoming quinquennium.

UGC-supplied data made it clear that Victoria had a high proportion of professors to overall academic staff and to student numbers and the university has publicly identified chairs in a wide range of departments for disestablishment or downgrading.

E. Patrick McQuaid considers the proposals and likely impact of a new 'up-beat' report on US schooling

Virtually every newspaper in America tomorrow will carry a front-page account of the massive Carnegie Foundation report on secondary education, *High School*, released today by the New York publishers Harper and Row.

The attention the study garners will be a self-fulfilling prophecy of its principal author, Mr Ernest Boyer, who said earlier this summer that study after study will produce either "a great reform, a political aberration, or a media blitz."

Staff at the Carnegie Foundation plan to take the public by the lapels, first with a national press conference during the following few months. A document, the report, from a noted Washington producer, is to be released in late November when the foundation's campaign to implement some of its recommendations and keep public attention focused on the issue will be in full stride.

What makes the Carnegie report so different is its up-beat message. Hailed as the most comprehensive and detailed study to date, *High School* finds a lot of good in the American schools and bases its proposals for reform on many of the nation's more successful, though rarely publicized, programmes to form an agenda for reform. "There's excellence there," Mr Robert Hochstadt, of the Carnegie staff, explains.

Mr John Gardner, a former US Secretary of Health, Education and Welfare, says: "Ernest Boyer has produced the broadest, deepest and most humane of the current educational policy studies. It is a lively and persuasive report. Real students and teachers live in it." Boyer takes a long view of American education, looking at the problems of the nation and the people. The study culminates in an agenda that should be studied and debated by citizens everywhere.

The report calls for much greater involvement in the secondary schools on the part of American colleges and universities, a theme Mr Boyer has emphasized for many years as US Commissioner of Education and now president of the Carnegie Foundation for the Advancement of Teaching. It notes that progress has been made in raising their own academic standards, colleges have to set new standards in the secondary schools as well.

In one chapter, "The College Connection", Mr Boyer illustrates "the five essential ingredients of collaboration. Schools and colleges are working together to establish standards, accelerate students' progress, create new kinds of institutions, educate teachers, and enrich the schools. The goal is to serve the student, not the system."

Outstanding students should be recruited for teaching, writes Mr Boyer. "When salaries and working conditions improve, prospects for recruiting talented young people will improve as well."

The study proposes:

- Every high school should establish a cadet teacher programme in which high school teachers identify gifted students and encourage them to become teachers. Such students should be given opportunities to present information to classmates, tutor other students who need special help, and work with outstanding school and college teachers.
- A national curriculum should be developed, and a solid academic major should be a fifth year education or teaching programme.
- A national curriculum should be developed, and a solid academic major should be a fifth year education or teaching programme.

Nuclear-free minds at issue

from Janet Hook

WASHINGTON President Reagan has backed down - at least temporarily - from his long-standing promise to abolish the US department of education, but his critics say the agency's effectiveness is still being undermined by staff cutbacks and reorganization schemes.

A plan, which takes effect this month, to reorganize several divisions within the department of education and to lay off about 120 of its 5,300 employees from their jobs has provoked an outcry from democratic legislators on Capitol Hill. They regard the reorganization as a back-door effort to subvert liberal education programmes that President Reagan has tried, unsuccessfully, to persuade Congress to eliminate.

The controversy comes at a time when criticism of American schools and colleges has become a hot topic of political debate. President Reagan in recent months has joined the chorus of politicians proclaiming their commitment to educational excellence.

During Mr Reagan's 1980 campaign for the presidency, one of the few

education proposals he advanced was the abolition of the education department. But since his election, his plan to replace the department with a smaller, less powerful agency - a "foundation for education assistance" - has won little support in Congress, where legislation would have to be passed to carry out the president's wishes.

But now, as education has emerged as a key issue for the 1984 presidential campaign, the Reagan administration has put its proposal to abolish the department to one side - at least until after next autumn's election.

Although the education department has survived and now seems to have a new lease on life, some of the agency's supporters claim that recent staff reductions have been just another, less overt way of undercutting the department.

In the two years since President Reagan took office, the department's staff has dropped more than 25 per cent - from about 7,400 employees in 1981 to 5,300 this year. Those personnel reductions have been part of the administration's government-wide effort to reduce the ranks of federal bureaucrats.

The latest round of lay-offs has been particularly controversial because it affects several politically popular programmes that support educational services for disadvantaged schoolchildren, American Indians and women, and a programme that helps state education agencies to carry out plans to racially integrate their public (state) schools.

Administration officials say that the reshuffling of personnel and lay-offs

Italy plugs scientific brain drain

from Philip Willan

ROME Nearly 1,000 scientists, including Nobel prize-winner Robert Hofstadter from Stanford University, attended a week-long international conference on nuclear physics in Florence.

Italy's investment in expensive research facilities for nuclear physics has succeeded in halting the brain drain of previous decades and Italian scientists are beginning to return to work in their own country. Europe's largest tandem particle accelerator was opened recently near Padua and a cyclotron superconductor under construction in Milan will be the first in Europe and only the third in the world.

Among the subjects raised at the ninth world conference of the International Union of Pure and Applied Physics was the improvement of artificial joints for use in the treatment of arthritis. Professor Allan D. Broyles of Yale University said the hardening of artificial joints by the implantation of ozone ions in an accelerator radically reduced their susceptibility to corrosion. This meant that they lasted for decades rather than years.

Another medical application of nuclear physics is in the analysis of trace elements by bombardment with accelerated alpha particles. As well as being useful for dating archaeological remains, this technique can be adapted to give an early diagnosis of cancer.

During the conference the American scientist George Temmer drew up an appeal against nuclear weapons which was signed by many of the participants.



Ernest Boyer: prophecy fulfilled

and technology and its uses."

Further education for teachers must also be strengthened, says the Carnegie study. "We cannot expect a teacher trained 20 years ago to prepare students to live 40 years in the future with no policy of systematic continuing education for the teacher."

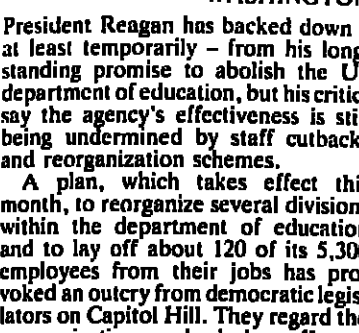
Elsewhere, the report suggests that all commercial television networks should satisfy time-time hours every week for educational programming, and thereby indirectly enrich the school curriculum.

In addition to college and university partnerships, it is proposed that American business and industry form comprehensive links with the secondary schools.

In mid-October, Mr Hochstadt explained, the foundation will announce the award of about 100 small grants to secondary schools, nationwide, to be used for planning and "thinking about the implementation of some recommendations." Early next year, more substantial grants will be made for actual implementation.

US government 'undermining' agency

from Janet Hook



Reagan: lacked Congress support

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Administration officials say that the reshuffling of personnel and lay-offs

Universities face shake-up in quality control exercise

from Emil Zubryn

CUERNAVACA The National University of Mexico has launched an ambitious "academic reinforcement" project designed to detect deficiencies in the existing academic programme and develop new initiatives to meet the needs of the nation.

Dean Octavio Rivero Serrano, announcing the revision of the curriculum, said that the time had come for Mexican universities to take a hard look at their future and to amend former errors, even if structures of institutions had to be modified. He stressed that if academic levels were not perfected, universities would be unable to serve the nation or grow with it.

After a decade of what he termed an "explosive growth" in Mexican universities, the dean said it was urgent that they now concern themselves with growth from a qualitative point of view. Speaking realistically, Rivero Serrano said that all segments of the republic should be conscious of the fact that Mexico would not be what it was before its economic crisis.

He said that planning for short term recovery measures, and even joint cooperation, was not sufficient. Mexican universities had the obligation to work out realistic programmes, not on any suggestions from central administration, but on their own, and to take into consideration regional problems.

Rivero Serrano emphasized that Mexico would only be able to overcome its crisis if it trained more specialists, particularly in the sciences and technology. The programme launched by the dean would not be a short-term effort, and he foresaw that it would require at least two decades of hard work to achieve success. The main outlook would not be to seek solutions for today's problems, or those of tomorrow, but to direct efforts on a long-term basis and view, he said, a drastic shake-up will be required in academic circles, embracing teaching of students, improved training of teachers and a closer professor-student relationship.

There will also be a need for help and financial aid, for students as well as universities; broader analysis; and determining how best to execute plans and projects, which can lift university academic levels to new peaks.

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English 'neglected' in Pakistan

from Hasan Akhtar

ISLAMABAD The neglect of English language teaching in Pakistan is beginning to cause serious concern to academics and officials.

Pakistan's University Grants Commission has now taken up the problem and recommended a new approach and programme to improve the standard of English language teaching in colleges.

As a first step, an English Proficiency Unit was set up earlier this year at the University of Baluchistan in Quetta with the assistance of the Asia Foundation, which will provide expertise and books for one year.

With the help of the British Council and Manchester University it has started a one-month diploma course in English language at the Institute for Higher Education for English teachers in colleges.

Peter Scott reports from Frankfurt on the European Association for Research and Development in Higher Education

A meeting of two minds

A revival of the utopian spirit of 1968, or a pragmatic response to the rising tide of neo-conservative politics, economic difficulty, and possible demographic decline - these were the contradictory strategies for higher education in the year 2000 which were put forward at an international conference in Frankfurt last week.

The fourth congress of the European Association for Research and Development in Higher Education, which brought 300 policy makers and researchers to the Goethe University, was as a result a schizophrenic occasion.

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US government 'undermining' agency



Reagan: lacked Congress support

education proposals he advanced was the abolition of the education department. But since his election, his plan to replace the department with a smaller, less powerful agency - a "foundation for education assistance" - has won little support in Congress, where legislation would have to be passed to carry out the president's wishes.

But now, as education has emerged as a key issue for the 1984 presidential campaign, the Reagan administration has put its proposal to abolish the department to one side - at least until after next autumn's election.

Although the education department has survived and now seems to have a new lease on life, some of the agency's supporters claim that recent staff reductions have been just another, less overt way of undercutting the department.

In the two years since President Reagan took office, the department's staff has dropped more than 25 per cent - from about 7,400 employees in 1981 to 5,300 this year. Those personnel reductions have been part of the administration's government-wide effort to reduce the ranks of federal bureaucrats.

The latest round of lay-offs has been particularly controversial because it affects several politically popular programmes that support educational services for disadvantaged schoolchildren, American Indians and women, and a programme that helps state education agencies to carry out plans to racially integrate their public (state) schools.

Administration officials say that the reshuffling of personnel and lay-offs

Italy plugs scientific brain drain

from Philip Willan

ROME Nearly 1,000 scientists, including Nobel prize-winner Robert Hofstadter from Stanford University, attended a week-long international conference on nuclear physics in Florence.

Italy's investment in expensive research facilities for nuclear physics has succeeded in halting the brain drain of previous decades and Italian scientists are beginning to return to work in their own country. Europe's largest tandem particle accelerator was opened recently near Padua and a cyclotron superconductor under construction in Milan will be the first in Europe and only the third in the world.

Among the subjects raised at the ninth world conference of the International Union of Pure and Applied Physics was the improvement of artificial joints for use in the treatment of arthritis. Professor Allan D. Broyles of Yale University said the hardening of artificial joints by the implantation of ozone ions in an accelerator radically reduced their susceptibility to corrosion. This meant that they lasted for decades rather than years.

Another medical application of nuclear physics is in the analysis of trace elements by bombardment with accelerated alpha particles. As well as being useful for dating archaeological remains, this technique can be adapted to give an early diagnosis of cancer.

During the conference the American scientist George Temmer drew up an appeal against nuclear weapons which was signed by many of the participants.

English 'neglected' in Pakistan

from Hasan Akhtar

ISLAMABAD The neglect of English language teaching in Pakistan is beginning to cause serious concern to academics and officials.

Pakistan's University Grants Commission has now taken up the problem and recommended a new approach and programme to improve the standard of English language teaching in colleges.

As a first step, an English Proficiency Unit was set up earlier this year at the University of Baluchistan in Quetta with the assistance of the Asia Foundation, which will provide expertise and books for one year.

With the help of the British Council and Manchester University it has started a one-month diploma course in English language at the Institute for Higher Education for English teachers in colleges.

Peter Scott reports from Frankfurt on the European Association for Research and Development in Higher Education

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Overseas news

Nuclear research gets ahead

from E. Patrick McQuaid

CAMBRIDGE

Yale University is to receive a \$11m federal subsidy to install one of the world's most powerful and precise electrostatic accelerators for nuclear science research.

The central tank of this new accelerator is more than 100 feet long and 25 feet wide and resembles a huge submarine. It will be constructed outdoors in a parking lot beginning early in 1985 and then moved a year later into a heavily-shielded nuclear studies laboratory on campus.

The new machine, called extended stretched transuranium (ESTU) will allow the university's existing emperor tandem accelerator to obtain higher ion beam energies ranging from nuclei of hydrogen to those of uranium. A vast network of computers and research instrumentation will support the accelerator complex, according to Yale scientists.

Only the facilities at the nuclear structure facility at Daresbury in England and the Oak Ridge national laboratory in America, will have comparable characteristics in precision, power and versatility to the Yale ESTU, they claim.

In July, the high energy physics advisory panel, a committee of leading American physicists suggested to the government's department of energy that it should abandon work on an accelerator at Brookhaven National Laboratory near New York and scrap proposals for another collider at the Fermi national accelerator laboratory outside Chicago.

The panel recommended instead that all efforts be channelled into the design and production of what they envisaged as the world's largest accelerator - a 100-mile circumference machine that would take 10 years and \$2 billion to build.

Called a super-superconducting collider, the accelerator would collide particles at 20-trillion volts. The largest American accelerator is at Fermi and it has a circumference of four miles. It accelerates protons to 700 billion electron volts. A 16-mile circumference accelerator is scheduled for construction at CERN laboratories near Geneva soon.

The proposal was put to some 500 physicists attending an international conference at Fermi. Most agreed that conventional technology was mature enough to make such a machine possible.

In Washington, the president's science advisor, Mr George Keyworth, has been very encouraging about the plan, according to Fermi scientists. A feasibility study to explore research, development and site determination would probably cost between \$150m and \$200m.



False hopes abandoned

A gang of forgers has been using the Catholic University of Lublin's printing works to produce fake US \$100 bills, Polish police alleged last week.

About 27 people have been detained in connection with the forgery operation. The police said the forgery operation was run by a group of people who had been using the university's printing works to produce fake US \$100 bills.

Throughout the recent Polish economic crisis, dollars have been an alternative currency. Polish citizens are allowed to own hard currency received, say, from relatives abroad and to use it to buy otherwise unobtainable goods in the special hard-currency Pewex shops ostensibly set up for foreign tourists.

Direct purchase of dollars from foreigners is strictly forbidden but tourists, the unofficial exchange rate in 1980 was three to five times the official one and later soared to more than ten times the official rate.

Universities face shake-up in quality control exercise

from Emil Zubryn

CUERNAVACA The National University of Mexico has launched an ambitious "academic reinforcement" project designed to detect deficiencies in the existing academic programme and develop new initiatives to meet the needs of the nation.

Dean Octavio Rivero Serrano, announcing the revision of the curriculum, said that the time had come for Mexican universities to take a hard look at their future and to amend former errors, even if structures of institutions had to be modified. He stressed that if academic levels were not perfected, universities would be unable to serve the nation or grow with it.

After a decade of what he termed an "explosive growth" in Mexican universities, the dean said it was urgent that they now concern themselves with growth from a qualitative point of view. Speaking realistically, Rivero Serrano said that all segments of the republic should be conscious of the fact that Mexico would not be what it was before its economic crisis.

He said that planning for short term recovery measures, and even joint cooperation, was not sufficient. Mexican universities had the obligation to work out realistic programmes, not on any suggestions from central administration, but on their own, and to take into consideration regional problems.

Rivero Serrano emphasized that Mexico would only be able to overcome its crisis if it trained more specialists, particularly in the sciences and technology. The programme launched by the dean would not be a short-term effort, and he foresaw that it would require at least two decades of hard work to achieve success. The main outlook would not be to seek solutions for today's problems, or those of tomorrow, but to direct efforts on a long-term basis and view, he said, a drastic shake-up will be required in academic circles, embracing teaching of students, improved training of teachers and a closer professor-student relationship.

There will also be a need for help and financial aid, for students as well as universities; broader analysis; and determining how best to execute plans and projects, which can lift university academic levels to new peaks.

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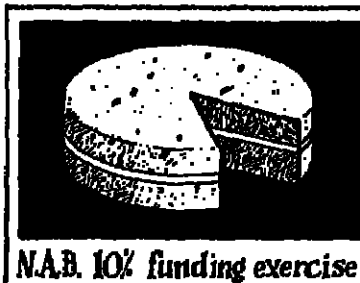
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## BIRMINGHAM

Birmingham is anxious about the implications of being asked to take extra students while its budget faces a cut of up to 6 per cent in just one year.

With 5,332 full-time equivalents in 1982/83, its response to NAB was for 5,592, increased in NAB's proposals to 5,814.

Mr Roy Hammond, the polytechnic's director, said: "NAB have said they want us to take more students on significantly less money. Increases of more than 10 per cent are suggested for business management, accountancy and law, and also in technology and manufacturing."

Brighton's broad proposals have been accepted by NAB and incorporate an additional 330 places for initial teacher training and 88 as part of the information technology initiative.

The polytechnic has been recommended to take 100 students more than it proposed in its response to the NAB consultation exercise. But the plan would merely reinstate Bristol's view of likely recruitment for 1984/85 given no restrictions.

The NAB secretariat has put forward a student population of 6,485, which is only five fewer than the estimate of likely numbers for next year. This compares with a "bid" of 6,381 students, 11 fewer than the polytechnic had last year. The only programme change highlighted is an increase of some 10 per cent in the humanities, which had been recruiting smaller numbers in the last two years.

COVENTRY (LANCHESTER) Instead of a modest increase from 5,332 full-time equivalent students in 1982/83 to 5,400 in 1984/85 the poly-

# How the cake has been cut...

THES reporters analyse how the National Advisory Body's plan will affect individual colleges and polytechnics



Christopher Ball: chairman of the National Advisory Body



John Bevan: secretary of the National Advisory Body

How the NAB plan will affect polytechnic budgets (£m)

|                | 1983/84 | 1984/85 |
|----------------|---------|---------|
| NELP           | 16.485  | 13.875  |
| Middlesex      | 15.933  | 14.850  |
| Kingston       | 12.344  | 12.231  |
| Birmingham     | 12.570  | 12.508  |
| Coventry       | 13.721  | 13.108  |
| Wolverhampton  | 12.203  | 11.864  |
| Liverpool      | 12.237  | 14.910  |
| Manchester     | 22.888  | 22.334  |
| Sheffield      | 18.905  | 18.436  |
| Huddersfield   | 10.572  | 10.227  |
| Leeds          | 14.005  | 13.882  |
| Newcastle      | 15.051  | 14.928  |
| Sunderland     | 9.717   | 9.704   |
| North London   | 10.917  | 10.429  |
| South Bank     | 14.178  | 12.874  |
| City           | 8.506   | 7.952   |
| Central London | 11.577  | 10.185  |
| Thames         | 8.908   | 8.352   |
| Bristol        | 13.290  | 13.402  |
| Teesside       | 7.289   | 7.700   |
| Plymouth       | 9.162   | 8.955   |
| Brighton       | 12.683  | 12.337  |
| Portsmouth     | 15.880  | 13.801  |
| Hatfield       | 10.408  | 9.933   |
| Preston        | 9.488   | 9.759   |
| Leicester      | 16.253  | 15.551  |
| Trent          | 17.995  | 17.414  |
| Oxford         | 9.641   | 8.136   |
| North Staffs   | 10.577  | 10.912  |

largely thanks to information technology posts.

LEEDS Leeds has been asked to maintain its student numbers at about 6,800 full-time equivalent and not to cut places in such areas as town planning and environmental studies which have been subjected to special scrutiny at national level.

LEICESTER Small reductions in student numbers for pharmacy and social and administrative work courses are more than offset by increases in proposed recruitment to engineering, other technologies and science, maths, computing, and business courses at Leicester polytechnic, leading to a net gain of 370 places. Proposed FTE is 6,746 students.

KINGSTON No course closures but a continued shift away from the humanities, social sciences and fine art towards technological subjects are the main proposals for Kingston.

Its director, Dr Robert Smith is telling staff Kingston has come out of the exercise best of all the polytechnics in the south east.

Student numbers are to rise from the current 4,950 past the polytechnic's own bid for 5,100 to an anticipated 5,285 full-time equivalent in 1984/85.

CHELMER INSTITUTE NAB has projected a 10 per cent growth for the institute, which as with Cambridge CAT, is part of its policy to redress under-provision in East Anglia. As a result Chelmer will expand in business studies, computing and information technology, as well as construction management. Its student population will rise from 3,100 to 3,410, although the institute has already closed its BA and BSc programmes.

Chelmer and the local authority are to appeal against loss of the town planning degree. The institute says if it goes there will be no town planning school in East Anglia.

CREWE and ALSAGER Student numbers are to be reduced from 1,750 to 1,564, which will mean lower intakes to all courses, and the college is to get an 8 per cent cut, which it calls disappointing. It intends to appeal against the proposals as it believes they will result in less cost-effective courses and seriously affect its part-time work which it had hoped to expand with the creation of a new degree.

DERBY LONSDALE Proposals to reduce employment and overall costs by 5 per cent were accepted by the NAB. This is not intended to affect any of the college's programmes.

Projected student numbers of 3,000 after a cut have been slightly increased by the NAB, although its staff reduction of 60 to achieve 300 have already been implemented.

## BRIEFING

This 3 per cent increase in student numbers will take place against a 2 per cent decrease in funding before the effects of inflation, the sums earmarked for information technology, and the £120,000 a year incremental drift on the academic salary bill are taken into account.

LIVERPOOL The NAB recommendations for Liverpool combine the polytechnic with the City of London College of Higher Education, with which it is about to merge. The total student numbers by around 300 - from the 7,121 of the combined bid, to 7,515. But the increase conceals shifts between programmes which are still uncertain.

According to the polytechnic, because the recent decisions by the NAB on nautical education may affect them. The letter does however recommend that the threatened BA in environmental planning be reinstated, and the BEng in mechanical engineering expanded. Implications for staffing are still to be decided.

MANCHESTER Manchester is facing severe financial difficulties through the NAB proposal, despite reinstatement of the 10 per cent "drop".

The polytechnic, which has already pruned its budget by £1.3m this year, needs £2m to cope with the proposed FTE increase from 10,000 to 10,428. Forty staff were lost this year through voluntary redundancy, and about the same number last year. Staff numbers for next year are to be reviewed.

The polytechnic, which has just merged with the City of Manchester College of Higher Education, prioritized all its programmes, most of which will remain unchanged.

MIDDLESEX Middlesex Polytechnic has been recommended to lose around £1.3m from its budget of £15.9m, which after inflation means a reduction of about 11 per cent according to the director, Dr Ray Rickett. Its student numbers would increase from the present 6,392 FTE to 6,585, lower than the polytechnic's bid of 6,392 FTE to 6,585.

# ... institution by institution

lower than the polytechnic's bid of 6,992. These figures disguise a disproportionate fall in the first-year entrants in 1984/85 says Dr Rickett, since even the higher bid figure included a fall in first-year enrolments.

NORTH EAST LONDON POLYTECHNIC Scheduled to receive fewer students than it said it could take - but more than it has at present. Its allocation of about 5,000 is an improvement on its present FTE of 4,850 but less than the 5,324 it proposed to NAB.

Many programme areas will receive increased numbers under the proposals but the heaviest loss is the planned closure of its in-service BEd degree, which is to cease intake in 1984.

It will reduce the in-service FTE almost imperceptibly from 140 to 134 - but this masks a continued decline as students complete their degrees to something in the order of 90 FTEs after a couple of years. Proposals are likely to try to save the BEd to ensure the continued viability of the department which will otherwise offer postgraduate and post experience courses.

Another area is architecture, where

the polytechnic's current FTE is to fall from 124 to 111. Officials admit this puts the department on the margin of viability.

NEWCASTLE With 100-200 more students but a cash reduction of some £150,000 Newcastle is anticipating serious problems for 1984/85.

Although many factors will remain unclear until at least the end of the year, the polytechnic is working on the basis of a £1m shortfall.

NAB has sought no reductions in any of Newcastle's programme areas.

NORTH STAFFS North Staffs is one of the few polytechnics to be asked to make a modest increase in the numbers of humanities and social and administrative studies students.

NAB was evidently guided by anxieties that reductions in these areas at neighbouring polytechnics would leave the region too weak.

The polytechnic's total full-time equivalent numbers on advanced courses will increase to 4,870 under NAB's proposals for 1984/85 from the

1982/83 total of 4,562 and an expected total for 1983/84 of about 4,800.

OXFORD Oxford sees its 5 per cent funding cut as "almost catastrophic." Some teaching posts are to be axed and it is expected that student numbers will go down 270 to 4,500. Programme changes are inevitable but are still being discussed.

All were given equal priority, with reference to the success of the polytechnic's modular course and of its faculty of architecture, planning and estate management.

PLYMOUTH Plymouth was one of the fortunate institutions for which NAB proposed a reinstatement of the 10 per cent cut. The polytechnic, which had prioritized parts of some programmes, with emphasis on the technology subjects, says there will be very few programme changes. Reaction to the proposal was largely favourable.

The polytechnic is being asked to increase student numbers in its courses. The FTE student figure is to increase from 4,240 in 1982/83 to 4,600 next year.

## Inner London polytechnics

Once again the Inner London Education Authority is responding on behalf of its five polytechnics and its colleges, although institutions are being encouraged to submit their own responses to the NAB, either as an appendix or as a separate letter.

The general ILEA statement, expected to be up for discussion in committee next week, is likely to pick up from the earlier ILEA submission commenting on the unsatisfactory nature of the whole NAB exercise. It is likely to make four points fairly strongly.

First, it is likely to express dismay at the way the NAB has converted planning statements based on a 10 per cent cut into "bids". As one senior polytechnic administrator put it: "If you respond responsibly to a plan, it is pretty galling to be told that this is now your bid."

Second, ILEA will express concern at the likely effects of switching funds away from London and the south-east where there is a concentration of polytechnics.

Third, the authority will focus attention on the London weighting arrangements which do not appear to have figured fully in the NAB deliberations.

Fourth, ILEA will probably comment on the likely effects of abolishing "further funding" which could hit London institutions quite hard, and affect special programmes introduced by colleges and polytechnics.

Dr John Belashon, the director of the Polytechnic of the South Bank, was aggrieved because the polytechnic had tried to cater particularly for the part-time and professional student, and yet the NAB had responded by "savouring us." He estimated South Bank faced the fourth

largest cut among polytechnics, equivalent to about 17 per cent.

South Bank has been allocated about 5,100 students, within a handful of its "bids", up from its current intake of 4,930. But it believes it could easily cater for many more, perhaps 6,000 FTEs. Thames Polytechnic has been allocated 3,300 student places under the NAB proposals, 290 fewer than its "bid". No in-service teacher training is to take place at Thames unless it is done in conjunction with Avery Hill College.

City Polytechnic has been allocated 3,400 student places, in line with the 10 per cent cut estimate, but much less than the polytechnic would like to admit. Mr Stephen Jones, the deputy director, said there was great surprise at the way the exercise was being handled. City will also be writing to the NAB to protest specifically at the proposal to close down its navigation department.

The Polytechnic of North London is down 200 FTE student places on its submission to NAB, so that under the new proposals next year it would have 4,600 FTEs, compared to 4,300 at present. Mr David Croome, the deputy director, said PNL had fared less badly than many other polytechnics.

The Polytechnic of Central London, which declined to make any comment, has been allocated 4,000 student places, compared to a bid of 4,060, which surprisingly was itself lower than its current intake of 4,170. The loss of 60 places is accounted for by the proposed abolition of the town planning courses.

## cost of the proposed new funding system

### HUMBERSIDE

The previous decision of the NAB committee to recommend the closure of the college's advanced nautical courses has left Humberside 160 students short of the numbers it had proposed in the consultation exercise. Two degrees, in marine engineering and nautical studies, will close if protests are unsuccessful.

Otherwise, the college's bid for an increase of some 600 students on the 1982/83 total of 2,800 has been accepted. Part of the increase is attributable to new courses working their way through to three years of enrolments.

LUTON Luton is expecting a slight increase in funding, about one and a half per cent. Full-time equivalent student numbers at 914 in 1982/83, are set to increase to 1,013 in 1984. However, as there will be no staff increase, the student-staff ratio will worsen. There are 127 lecturing staff.

The college, which did not establish priorities, says there will be no programme changes. But a new course will be offered at the end of next year: a Higher National Diploma in computer studies, which was approved before the onset of the NAB funding exercise.

College director, Dr R. W. Stead said he was "wholly satisfied" with the allocation. Details of next year's budget were still being discussed.

NENE The college's proposals for student numbers were accepted and increased marginally to allow for the expansion

of part-time work. Full-time student numbers are to rise from 1,850 to 1,903.

Nene had already decided to reduce numbers of its BA combined studies by slightly cutting back options, and planned a small reduction for its BEC higher diploma. It is however planning to increase numbers on DATEC engineering courses.

NEW COLLEGE, DURHAM The college is angry that it would be cut back further under the NAB plan despite what it thought was an assurance that last year's loss of teacher training courses would be the end of enforced reductions for the moment.

Although the recommendation is for only 11 fewer student places than the 932 in New College's bid, the proposed pool allocation would impose further strains.

NORTH CHESHIRE Having lost its teacher-education courses in last year's cuts, the college has been given almost exactly what it proposed to sustain its recovery. But because its submission was made on the basis of a 10 per cent cut in student numbers, rather than funding, the proposed enrolments will fall short of what the college feels able to cope with.

Overall numbers on advanced courses would fall from 477 to 440 under the plan, but the college will benefit from the mitigation being proposed in the new funding scheme. Engineering, business studies and

management courses are expected to fill some of the gaps left by the loss of teacher training.

ROLLE Student numbers will be exactly as projected. Its in-service and other teacher education courses will have another 100 poolable students and another 100 is projected for its BA combined studies programme, to which it gave priority, will have a total of poolable students with an intake of 80 a year. Its initial teacher education numbers are set to rise by 46.7 per cent as agreed, and as planned its SSR will be 12:1 which will not adversely affect quality.

SLOUGH In addition to the 100 extra students the college asked for on information technology courses it is expected to should take 40 in computer studies and computer technology, and 15 more on the engineering programme. This increase is likely to be directed to mechanical and production engineering. Student numbers will rise from an actual 1,178 to 1,361 - the bid was for 1,224.

Slough says it has been given the appropriate funding but its assessment is that it will have to cope with more students within the same pool allocation. It does not intend to lose the 20 staff offered as part of the 10 per cent cut but to redeploy these to areas that are expanding.

SOUTHAMPTON Southampton College of Higher Education has a very high proportion

### PORTSMOUTH

The polytechnic faces a 10.5 per cent cut in budget, which was £15.66m for 1983/84.

At the moment, it is hoping to maintain student numbers but some staff posts may go. Already this year, 32 teaching positions were lost, through the need to call for voluntary early retirement.

Individual course numbers are expected to remain unchanged, except engineering, which will cut its student quota by 60. Fine art will also be reorganized.

The polytechnic has already been cut by more than 7 per cent since 1980/81. Director Dr Harold Law described the NAB proposals as "ridiculous" and said he was hoping the cuts would be modified in later discussions.

PRESTON The polytechnic is exuding an air of satisfaction as the NAB proposals agree with every element of Preston's own internal academic plan.

Student numbers at Preston would rise from 3,900 to 4,500 if the NAB plan was followed, mainly because of an increase in student enrolments. But Preston will be pressing NAB to allow an extra 30 places on its journalism training courses which are proving increasingly popular.

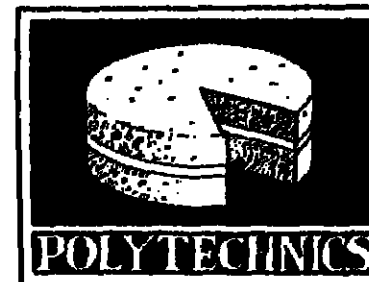
SHEFFIELD The polytechnic is far from happy with the NAB proposals. It is preparing a strongly-worded response, with most of its fire directed at the budget proposals rather than the student number allocation.

Mr John Siddart, the principal, estimates Sheffield is facing a cut next year approaching £900,000 after allowing for inflation at 6 per cent. In fact Sheffield planned for 7,900 FTE students on a 5 per cent cut, and has been allocated 8,084 students.

But this includes the extra information technology students already agreed, and in practice the extra 90 students spread over science and applied science courses will mean just three or four students added to each course.

SUNDERLAND No course closures but increases for courses related to information technology, engineering and computer studies are planned for Sunderland.

There is an increase of less than 2 per cent in student numbers - from the 4,107 included in the polytechnic's



response to 4,176 in NAB's proposals. In 1982/83 full-time equivalent was 3,736.

TEESSIDE Continued growth in student numbers at Teesside from about 3,500 in the last academic year to a plateau figure of just over 4,000 is confirmed in NAB's proposals.

The new figures incorporate the intake on to three new courses to be started as part of the information technology initiative.

TRENT The polytechnic received exactly the news that it anticipated from the NAB. Student numbers are to increase, reflecting increased enrolments, and the NAB accepted completely the special emphasis put on part-time work by Trent.

But Professor John O'Neill, the acting director, stressed this did not mean the polytechnic was entirely happy. He said the NAB proposals would work out to Trent's disadvantage with overall less funding bringing down the unit of resource.

Next year Trent would have 7,820 FTE students under the NAB proposals, up from around 7,500. Most of this increase would be in the business management, accountancy, and law courses.

WOLVERHAMPTON Senior staff at Wolverhampton have been meeting this week to discuss the full resource and staffing implications of the NAB proposals. The polytechnic was working to a 15 per cent cut anyway when it submitted information to the NAB and among the implications were some 70 academic posts at risk.

The NAB plan has in fact allocated 300 extra students to the polytechnic, and course heads are having to consider the implications of taking on extra students very carefully.

The original submission asked for 5,141 FTE students, while the NAB allocation is 5,438 spread over a range of subjects.

Colleges and Institutes

|                   | 1983/84 | 1984/85 |
|-------------------|---------|---------|
| Bolton Inst/Tec   | 2,898   | 3,528   |
| Bradford/Ilkley   | 3,414   | 3,574   |
| Bretton Hall      | 1,431   | 1,612   |
| Avery Hill        | 2,456   | 2,179   |
| Bedford HE        | 1,894   | 1,883   |
| Bath Coll/HE      | 1,686   | 1,858   |
| Luton Coll/HE     | 2,016   | 2,046   |
| Slough Coll/HE    | 2,509   | 2,716   |
| Bulmershe CHE     | 2,082   | 2,084   |
| Bucks Coll/HE     | 2,181   | 2,270   |
| Camps Coll/A&T    | 2,809   | 2,914   |
| N. Cheshire Coll  | 1,045   | 0,840   |
| Crawley & Alcegar | 3,184   | 3,281   |
| Dorset Inst/HE    | 4,145   | 4,228   |
| New Coll Durham   | 3,885   | 4,180   |
| Chelmer IHE       | 3,733   | 4,274   |
| So'con Coll/HE    | 3,183   | 3,698   |
| Worcester CHE     | 2,145   | 2,123   |
| Herts Coll/HE     | 1,341   | 1,134   |
| Norlington C/PE   | 0,672   | 0,616   |
| Edgell Hill CHE   | 2,723   | 3,371   |
| Humberside CHE    | 6,759   | 6,589   |
| Nene College      | 3,006   | 3,293   |
| W. Sussex IHE     | 0,883   | 0,821   |
| Ealing Coll       | 3,888   | 3,838   |
| Harlow Coll/HE    | 1,828   | 1,819   |
| W. London IHE     | 2,843   | 2,889   |
| West Mids CHE     | 1,819   | 1,730   |

### WORCESTER

The college has suffered a 10 per cent cut but is not prepared to reveal where this has fallen. According to Dr David Shadcock, the principle, the NAB's response was very much in line with the college's bid which had been planned most carefully, and any alternative might have caused problems. The college currently has 1,000 full-time equivalent students on the BA/BSc combined studies and the BEd initial and in-service courses as well as PGCE courses.

The reduction in its bid will mean no expansion. Instead the institute intends to concentrate as planned on a greater variety of combinations in its BA degree programme.



## BATH

Bath had asked if it could take another 29 students on the home economics degree but was told without explanation to cut numbers on the course. Instead it has been asked to double intakes on its part-time in-service higher degree from 43 to 90 students. The college had wanted to start a new course.

A bid for 875 students was raised by the NAB to 915, but the college is puzzled by some discrepancies in its teacher training figures which have already been set by the Secretary of State for Education. By 1984/85 it is meant to increase its BEd students from 165 to 195 and its postgraduate certificate of education numbers from 30 to 50.

BEDFORD Not Bedford, the NAB's response means largely the status quo. Student numbers are to increase from 89 to 982 in 1984/85, but this is to allow for natural growth in teacher training and a slight expansion in the continued studies degree.

The college will intend to squeeze its part-time intake but to what extent it is not clear. It does not know its own full-time intake.

BOLTON INSTITUTE The institute says that the NAB has

## Win some, lose some? Colleges count the

basically rubber-stamped its proposals. It has agreed to the number of students bid for - around 1,812 (not including overseas students). As a result the college will not only continue its priority work, such as in engineering and business studies, but in areas reluctantly classed as non-sacrosanct such as humanities, psychology and textiles.

BRADFORD The NAB's figures imply a £237,000 reduction in finance on the same student numbers, or an overall cut of some 4.5 per cent, according to the college's calculations, but this depends on which base figure was used and whether inflation is accounted for.

Bradford's bid for 1,504 students, cut from 1,585, was accepted by the NAB, although this means a reduction in performing arts. It had already decided to reduce humanities-based courses as part of the strategy to bring Bradford and Ilkley colleges together. It still intends to reduce staffing from 189 to 148 as part of an exercise which started in 1982.

BRETTON HALL The NAB ratified the college's proposal to build on its strengths in education and management studies. It will have to increase its student numbers from 724 to 785 but funding is being held at the same level until 1985. The college is already one of the lowest funded in the country, some 134 per cent below the national average of £7,322.

BUCKINGHAMSHIRE The college is to appeal against the closure of its sociology and social work

degrees which it stresses will recruit well this year. Buckinghamshire offered to "cut" the degree to meet the NAB's 10 per cent hypothetical cut, but was extremely surprised and disappointed when this was accepted. It points out that the course is viable, widely recognized and enables students to qualify both in sociology and social work.

Buckinghamshire's bid for more students was rejected by the NAB. It asked for 1,184 and got 1,114 - a small increase on its actual numbers of 1,010. It says that the reduction of its bid by 40 students will mean that projected intakes across all other courses will have to be reduced. However it plans to ask the NAB to reconsider the cut.

BULMERSHE The college volunteered a 4 per cent cut but has been asked by the NAB for a reduction of 5 per cent. This means that instead of losing 100 students, it will lose





Pioneers in agricultural research: Rothamsted Experimental Station, Hertfordshire and an electrostatic crop sprayer developed there.

## Waiting for the storm to break

In the second of two articles on the Agricultural Research Council, Jon Turney talks to its secretary about the council's uncertain future

Dr Ralph Riley is waiting. Waiting to see if he will really have to go ahead with plans which will mean shedding one in ten of the Agricultural Research Council's thousands of staff. Waiting, indeed, to see if there will still be an Agricultural Research Council.

To be sure, the day-to-day administrative work of the ARC headquarters goes on, but the shadow of outside verdicts soon to come now lies over every medium-term decision about the future of agricultural research. Dr Riley's immediate task is to keep the machine ticking over through a period of remarkable uncertainty. As secretary to the council, he has had to read more reports on its work in a year than most public bodies would expect in 20. "We're buried under reports," he agrees ruefully.

However, he is used to challenges to the way the ARC operates. It is not the first time he has had to wait. "As soon as I came into this job in 1979 there was a public accounts committee hearing at which the Medical Research Council and the ARC were required to talk about the customer-contractor relationship," he recalled. There followed a long Government inquiry into the committee's recommendation: "that more of the ARC's money should pass to its customer department, the Ministry of Agriculture."

That inquiry was only completed in 1981. "The minister then concluded that it was more important that the money spent on agricultural research was spent well than that there should be a transfer," he said. Dr Riley might then have thought that he could return to straightforward research management, the turn his career had taken at the Plant Breeding Institute in Cambridge where he progressed from research in crop genetics to director. But the decision on commissioned research in 1981 did not signal an end to the ARC's troubles.

At the end of 1982, after a year of internal conflict over plans to cut staff at two council-run institutes, came the Advisory Board for the Research Council's recommendations for a cut in the budget. Dr Riley is a member of the ARC and recorded his dissent from that decision last year. He argues that the ARC should not take account of the Government's "restructuring" of the ARC, but rather should concentrate on its own research, which he believes are not. Clearly, the ARC has to deal with the five research committees in terms of their research. In the ARC's view, the five research committees are not to undertake research relevant to agriculture and food.

What is particularly concerning about the ARC's judgment made in 1982 is that the significance of science to the nation's life has been made less and less obvious. The ARC's position is that the Government's decision to cut the ARC's budget is a

others," he said. There was no absolute criterion to decide the relative importance of information technology and agriculture in 10 years time. "All that I'm anxious about is that scientific judgments shouldn't be swept along by fashion."

This year, the ARC has spent out the consequences of the cuts proposed by the ARC, in the hope that the decision will be reversed before the axe falls. "The benefit of having dissented in the way I did was that there was this longer period when the Secretary of State was able to say to the board: before you actually decide this, perhaps you can consider the other components."

The ARC's submission to the ABRC this year predicts institute closures and compulsory redundancies if the decision goes against the council. "We've said to them—this is what will happen if we're driven down this track. Is this what you want?" Dr Riley said. The ARC was asking for a major adjustment from the council which found it most difficult to do so in the short term.

"I suppose that some councils who are not such heavy spenders on in-house research would be capable of responding to abrupt change in the way that we're now being asked to. But because of the history and responsibilities of the council we work largely in-house. And there have been very great benefits from that structure—it has created the technical capability for the most successful industry in the nation," he said.

Now it remained to be seen if this defence had been successful. There would be little point in dissenting a second time. "I think I probably made my point and it doesn't need to be made again." And there could be no complaint about lack of opportunity to explain the effects of the proposed course.

He could not say he was optimistic. "I've been listened to apparently sympathetically, with concern," but whether the bottom line is going to change, he doesn't know.

If it comes to the worst, he insists that the council's restructuring plans can work within the reduced budget. Of course, work stopped would have its dangers, but he hoped the scientists, back-up staff and unions would be realistic. It would be a hard time, but the council's anxiety was to protect jobs. "I would not rule out any option including 'letting it all'—but I think this has not been contemplated. I don't know if it's going to be necessary and if it is, it would be a very hard way to go. But if the idea was put up, it would be considered," he said.

Meanwhile, there are numerous other reports on the ARC's position on these issues. The Government's decision to cut the ARC's budget is a



Dr Riley, waiting game

the existing arrangement. The balance between basic research paid for through the science vote and applied work funded by the Ministry of Agriculture was about right, he felt, and it was essential to keep the two linked. "What above all we can't afford is that the science relevant to the broad church of fundamental science, to become more and more isolated."

Of course the whole system was complex, partly because of the regional political dimension, but there was no ideal solution to this. "You can move these boxes around as you like. It's a good parlour game," he said. But the ARC would wait and see what happened.

He is less patient with the criticisms of the ARC made in the various reports and can point to plans to cater for many of the points made. The ARC had already decided to start making a strategic plan before the House of Commons Select Committee on Agriculture called for better coordination of the service.

To those who argued that the ARC's aim of maximizing production was no longer justified, he replied that it was the surplus created by the European Community's agricultural policy had only grown up in the last few years. The council was now turning its attention more to increasing the efficiency of use of inputs for food production—growing the same crops with less energy, fertilizer and pesticides.

The ARC had already commissioned a report on the location of the council's headquarters before the Joint Consultative Organization complained about the expense of the London premises in Great Portland Street. Dr Riley assumed a wounded air and spoke for a moment with less than his customary caution. "All that they are doing is looking up problems which are already appearing to us. If they'd help us, we'd be aware of them."

He also made the more serious point that critics now complain about the ARC's decision to cut the ARC's budget is a

scientists' group didn't exist prior to the adoption of the Rothschild principle. That is a change that has led to greater complexity in the organization of agricultural R&D (research and development) than before. That's the way it has been administered."

One criticism which he admits may have been valid is the JCO's suggestion that council members do not play a strong enough role in policy-making. The ARC, like the Medical Research Council but unlike the other three research councils, does not have a full-time chairman, so outsiders tend to see the secretary as running the show.

"Of course a quite large council which meets infrequently could not be involved in the detail of policy formulation," Dr Riley said, and admitted that this had been a worry. He emphasized that policy proposals were always presented to council members as options, but conceded that the criticism identified a weakness in the ARC's work.

"We have established three council committees dealing with plants and soils, food and animal science—all with members of council, directors of institutes, representatives of ministries and others among their members," he said. These committees were already active in making plans for research in each sector and formulating advice on allocation of money.

"So the delegation of the council of some of its responsibilities and setting up a new infrastructure I think says that if that criticism was valid it is no longer so." And the personal criticism? He smiled and replied in habitual measured tones. "Neither I nor any other secretary of this council has been a dictator. That's nonsense. The council has always borne its full responsibility for policy."

Dictator or not, Dr Riley is certainly a staunch defender of the ARC's record. And he can point to a whole range of changes which, together, probably move the council as fast as it can towards the policies now being pressed on it by advisers, MPs and others. Critics will say that change has come too fast and that the council is presently constituted cannot move fast enough to ensure the future success of the agriculture and food industries.

Whatever the outcome, Dr Riley is sure of one thing. "All the time that I've been doing this job, the status of the council, its responsibilities and sources of funding seem to have been under debate. And whoever is the chief executive of this council or whatever succeeds it needs to be left to think constructively about how the science and technology should be developed for these industries and not have to be looking over his shoulder all the time and to be questioned as has happened over the last five years."

Could one ever expect the "classic" debate—pure versus applied research; public versus private funding; central versus local control—to go away? Dr Riley said they had been aired quite often for his part. "These debates often go away. What ever decisions are taken now ought to be decisions for at least a decade." All he can do now is

## Philosophy presented by stages

Daniel Gillan meets a playwright who seems destined to remain on the fringes of success

Stanley Eveling, now at Edinburgh University, has been lecturing in philosophy for 25 years and writing plays for about 20. The relationship between the two activities is complex. He finds it irritating to be asked questions about the gap between the two, because he doesn't feel there is one, only a difference.

Playwriting does not intrude on his philosophy, he finds, but philosophy is necessarily a part of creating characters. "They stand back from themselves, being self-conscious," he says. "A large part of philosophy is being self-conscious about the operative idea employed."

In this sense, philosophy is no burden to playwriting, but in others it can be. Trailing a reputation as a philosopher may arouse expectations of complexity which do not actually exist. After all, he points out: "Philosophy is only highly polished thought, the smart end of the trade as it were."

These reflections stem from the reception given *Buglar Boy* which has been running at the Traverse Theatre as part of the Edinburgh Festival Fringe. It is Eveling's first personal play in eight years and while one critic hailed it as "exceptionally imaginative", another seemed to have about the point completely: "*Buglar Boy* is nothing but a sore thumb. It is a very good idea, but it is a very bad idea, and it is a very bad idea."

Eveling fears that this lack of popular success means even less likelihood of the plays being produced in the future. At one time many of his plays were performed on stage, in the early years on radio and on television. These were on the whole "radio pieces". In 1978 he wrote *The Invisible People*, a play he is personally very pleased with. Unfortunately, as yet, no management seems to share his enthusiasm.

The author, while affirming his own qualities, admits: "I may suffer from the singular defect that the characters are extremely intelligent, that the conversation is not an imitation of intelligence, but is actually intelligent. It is not Plato's artist holding up a mirror to nature. The character is a model logician and I know about logic, so what he says is true... But the play also contains much feeling and it is that sort of drama."

It is also said for the author that these people don't exist yet. "They're lying about it, their little words call for waiting to be resurrected."

In spite of all the talk of self-consciousness, Eveling insists that the process of writing, which excites him, is basically intuitive. "Once the idea begins to shiver and shake, then it simply works its way out through the typewriter." Suggestions of intellectual elegance simply do not match the evidence.

Admittedly Eveling is writing serious and sometimes difficult plays that require creative effort on the part of the audience, but the result is not hermetic or condescending. He wants the audience to be taken into the dramatic experience and is frustrated that commercial and cultural pressures do not seem to give his sort of play a fair chance.

Luckily he wears a third hat in television criticism for *The Scotsman* which allows him to work off some of his frustrations. "I play the clown, at times, and I'm not at all surprised that I'm not taken seriously. I'm looking forward to it all when video will end it all and we'll all watch nothing but *Switched*."

## Culture – a world exclusive

Martin Jay argues that neither high culture nor social hierarchy can be dismissed as simply as some radical critics suppose

"All culture after Auschwitz," wrote Theodor Adorno in *Negative Dialectics*, "is garbage." For the Holocaust finally and irrevocably exposed the lie that supporters of culture and the humanities have promulgated to justify their existence: that the pursuit of what we usually call "high culture" is somehow a humanizing endeavour. But then he added: "Whoever pleads for the maintenance of this radically curable and shabby culture becomes its accomplice, while the man who says no to culture is directly furthering the barbarism which our culture showed itself to be."

If Adorno seems to be contradicting himself, both attacking culture as garbage and rejecting the implications of that very attack, the explanation is that he was attempting to confront without flinching one of the thorniest perplexities of the modern condition: the impossibility of finding a stance, on the intellectual as well as political issues, that is free of some sort of self-contradiction. He wanted to remain true to the inherently ambiguous nature of high culture, at once a false consolation for real suffering and an embattled refuge for the utopian hopes for overcoming that very misery. To hold on to an elevated view of culture, Adorno implies, is to be an accomplice of the barbarism it failed to prevent and the hierarchical vision of reality it upheld. But so too is its mindless rejection as nothing but ideology and consolation.

If before Auschwitz, to use Adorno's own shorthand expression, there was a general tendency to accept the self-image of the humanities uncritically, and thus ignore their covert complicity with barbarism, more recently the opposite inclination seems to have gained the upper hand. From many sides, we are now constantly reminded that high culture does not save, indeed that it might do the opposite. Cultural elitism, we are insistently told, is the handmaiden of social elitism and thus has no place in a pluralist democracy, let alone any more radically egalitarian polity. What hitherto had been the rallying cry of disgruntled populists has now become a widespread complaint, as a crescendo of criticism has been directed against "white, male heterosexual" culture by those who fall outside those categories.

It would certainly be callous to deny the legitimacy of many of their complaints and condescending to advise patience. What may perhaps be less out of order is a plea to examine more closely the ambiguities of the anti-hierarchical solutions many of them propound.

For an idea that is normally considered conservative may have covertly radical or at least critical dimensions. To avoid any inference that I am merely defensively retreating from the "infatuation" of modernity to the "closed world" of the past, let me state my intention to "refunction" rather than merely defend the value of cultural hierarchy.

As examples of the current mood I have chosen two very different figures, one a distinguished senior historian and the other a younger literary critic, who have recently achieved some prominence. Neither can be construed as direct victims of the current hierarchy, which demonstrates how pervasive the critique has become. The former is William B. Eerdmans, recent president of the American Historical Association, currently Sather professor of history at the University of California, Berkeley, and a world-renowned scholar of the Renaissance and Reformation. He is also the author of a provocative essay in the *Journal of Interdisciplinary History* published in 1981 entitled "Intellectual History in the 1980s: From the History of Ideas to the History of Meaning."

The second is Michael Ryan, who teaches English at the University of Virginia and is the author of a book entitled *Marxism and Deconstruction*, published in 1982. Taking these two scholars together is particularly instructive because they come from very different intellectual traditions: yet arrive at a similar destination in their attitude towards hierarchy. Bouwsma, from the perspective of a Christian anthropologist, and Ryan, who presents himself as a Marxist-feminist advocate of deconstruction, both denounce the evils of cultural elitism.

The stimulus to Bouwsma's reflections is what he sees as the current crisis of intellectual history, whose decline he calls "obvious and probably irreversible." Rather than mourn this state of affairs, however, he celebrates it because he feels that the traditional basis of intellectual history was an idealist anthropology. "According to this view the human personality consists of a hierarchy of discrete faculties, among which the intellect—more or less closely identified with reason—is highest... The association with the brain gave the head ethical significance and converted it into a potent metaphor: the highest became best."

Drawing on the lessons in humility taught recent mankind by Darwin, Marx and Freud, Bouwsma concludes that it is no longer possible to define man as an intellectual animal. This is not, however, to say that man is undifferentiated from other animals: his uniqueness, according to Bouwsma, lies in his capacity to invest the world in which he lives with meaning. But, he writes, "these efforts are not the work of 'the intellect' or of any particular area of the personality. They are rather a function of the human organism as a whole". In short, the traditional distinction between intellect and other forms of history should be discarded, as must that between a privileged sphere of high culture and the rest of the broader anthropological sense.

Bouwsma's vantage point seems to be that of contemporary anthropology, but there is a deeper, more religiously motivated premise underlying his argument. For in an earlier essay he defends the Christian ideal of adulthood against what he calls the alternative model of "manhood", which is largely derived from classical antiquity. *Manhood* was associated closely with the domination of reason, which was absent in the child (and often in women). Human rationality was a sign of men's participation in the divine, as well as a tool to order the chaotic ambiguities of the world.

Through a learned account of the Christian response to this legacy from the classical world, Bouwsma shows that alongside one tradition, which adopted the ideal of manhood and plied man's allegedly higher soul against his baser passions, another tradition, which was more concerned with the spiritual and the moral, was absent in the child (and often in women). Human rationality was a sign of men's participation in the divine, as well as a tool to order the chaotic ambiguities of the world.

What is especially striking about Bouwsma's reconstruction of the Christian vision of adulthood is the use to which he implicitly puts it in his essay on intellectual history and the history of meaning. He admits that it is a view which has found only occasional realization in history as an antidote to the classical ideal of manhood whose hierarchical discriminations were also embodied in social forms. But then he bases his argument for the obsolescence of intellectual history on the implicit assumption that something like Christian adulthood in fact describes the way men really are: "we can hardly any longer define man as an intellectual animal... the autonomous 'intellectual' is now likely to seem, like the discrete intellectual of the old anthropology, at best an irrelevant abstraction from real life."

Why this new vision should be extrapolated back into history is not, however, completely clear. If the classical view held away as long as Bouws-

ma concedes it did, historians cannot hope to understand the past unless we acknowledge its powerful formative effect on the cultural differentiations of our ancestry. Moreover, the social hierarchy that in some sense was the underpinning of those distinctions must be taken into account in any attempt to reconstruct how meaning was made in history. For as Antonio Gramsci once put it: "All men are intellectuals... but not all men have in society the function of intellectuals." The point is not to return to an idealist defence of pure intellect above the fray or to construct watertight divisions between high and low culture, but rather to acknowledge that social differentiation has effected in the past (and still continues to effect) the means through which meaning is created and sustained.

Michael Ryan would no doubt have little to say about Bouwsma's model of Christian adulthood as a holistically integrated personality. To the St Augustine who cried, "I want to be healed completely... for I am a complete whole," he would probably reply that the only thing from which you really suffer is the old logocentric myth of perfect presence. Relief can only come from a willingness to engage in the infinite, explosive, transgressive play that makes a mockery of any pretension to centred subjectivity, a play that is far more Dionysian than that envisaged in the Christian model. And yet, Ryan is also unrelentingly hostile to the elitist privileging of reason or the soul over the other aspects of the human personality. Radical deconstruction and Christian anthropology thus both converge in their distaste for the evils of cultural hierarchy.

In *Marxism and Deconstruction*, Ryan's general intention is to present what he calls a "critical articulation" of these two traditions in order to fashion a liberating intellectual and political position that will avoid the authoritarianism of earlier leftist efforts. What Ryan finds most radical in deconstruction is its resistance to a politics of exclusion, which he claims has a "necessary relationship" with the hierarchical conceptual thinking Derrida has sought to undermine. Most important among such conceptual hierarchies are the distinctions between transcendence and immanence, consciousness and the body, mental and manual labour, theory and practice, reason and the irrational, efficiency and chaos, science and ideology, works of art and ordinary texts, speech and writing. All of these privilege the first term over the second, which leads to the domination marginalization or exclusion of the latter.

Following Derrida's arguments in *The White Mythology*, Ryan contends that the major victims of such hierarchically tainted knowledge have been women and Third World peoples, excluded from the patriarchal version of rationality prompted by European men. So-called feminine hysteria, therefore, is a therapeutic corrective to male rationality, "a sign of moral and philosophical goodness" which, to be sure, ought not to be enthroned in a new hierarchical position of domination. Any intellectual or cultural hierarchy, Ryan argues, is immediately complicitous with political repression. The truly liberating alternative, Ryan argues, is a politics of permanent revolution, which is analogous to the infinite, transgressive play supported by deconstruction.

Regardless of whether or not this vision should be denounced as an updated version of what Lenin damned as "infantile leftistism," it is unlikely to appeal to many today, especially after the discrediting of the Chinese cultural revolution. Nor will it seem very attractive to those with longer memories who recall the "disturbing" links between a totally relativist cultural nihilism and the decisional politics of will that contributed to fascism.

What, however, seems even more fundamentally questionable in Ryan's argument is the ultimately ahistorical assumption on which it is based. Perhaps because Ryan is so hostile to hierarchy of any kind, he refuses to privilege any historical cause in explaining the source of present inequalities. Although avoiding the pitfalls of reductionism, this may be the worst for him to do: the difficult question is some hierarchies more basic and



irremediable than others? It also prevents him from acknowledging that merely seeing through the hierarchical distinctions of our cultural and social life as harmful illusions does little to dispel them in reality. Thus, he engages in a kind of magical thinking in which he contends that "mental labour is always manual," "theoretical knowledge is immediately practice," and "the 'political' and 'economic' cannot even be considered as separate categories for the sake of theoretical exposition". Like Bouwsma, Ryan presents a desideratum as if it were already a fact. And in so doing, he blocks out understanding of why in reality it is not.

A wide variety of divergent hypotheses has, of course, been offered to account for social, cultural, political and sexual inequality. Durkheim sought an answer in the religious distinction between the sacred and the profane, which itself reflected the opposition between collective moral life and individual material existence. Freud conjectured that when men stood erect and lost their ability to react positively to olfactory stimuli, they began to feel shame about their "base" sexual and excretory functions. Rousseau, with his more primitive understanding of the psyche, blamed it on psychological proclivities towards pride and envy, while Marx pointed his finger at the division of labour and private property. Foucault claims that it is our inevitable fall into language, which gives us the ability to say two things with the identical word and the same thing with different words, that makes hierarchical distinctions possible.

These explanations and others like them are, of course, highly speculative; what they suggest, however, is the extraordinary difficulty of overturning hierarchy, which is an overdetermined phenomenon derived from a vast number of possible sources. It may seem that unless we get down on all fours, give up language, private property and the division of labour, undo all social abstractions like money, stop thinking in terms of parts and wholes, and overcome our biological differences, it is highly probable that hierarchy in one form or another will be around for some time to come.

What may be more useful—and is certainly less depressing—than speculating about the putative origins of hierarchy is considering the present functions it fulfils. For, if the genealogical method bequeathed to us by Nietzsche is right, there may be no necessary connection between origins and current significance or function. In fact, if we take the general post-structuralist attack on the search for origins to heart, then it is really only the present function that matters.

In probing the function of hierarchy, we are confronted by the problem of bracketing or holding in abeyance our visceral inclinations (towards egalitarianism, which prevents us from acknowledging the ambiguous dialectic of culture suggested by Adorno. In particular, we must avoid conflating all types of hierarchy into variations on the theme of domination; that Ryan exemplifies. For, such a conflation prevents us from considering the possi-

bility that some may not work in tandem with others, but rather against them. It is precisely this possibility that brings us back to the implications of Adorno's contradictory claim that something potentially emancipatory was still preserved in elite culture despite its tainted status.

What Adorno felt could be salvaged was evident in many places throughout his work but nowhere as clearly as in his implicit debate with Walter Benjamin over the implications of surrealism. For Benjamin, surrealism represented a revolutionary attempt to reintegrate radical art and life. In contrast, Adorno championed the variants of aesthetic modernism that remained esoteric rather than exterior in their appeal. Figures like Schoenberg and Beckett, who resisted the demand to make their art immediately effective in political or social terms, were more genuinely revolutionary in the long run than those, like the surrealists, who did not. There were costs, of course, as Adorno's more activist leftist critics never tired of reminding him. An inaccessible artistic elitism might never reunite its emancipatory potential with the social forces that would help realize it.

But in retrospect, Adorno seems to have got the better of the argument. For, rather than leading to anything demonstrably revolutionary, once-disrupting techniques like those of surrealism have shown themselves to be easily adaptable to the demands of consumer advertising. The attempt to break down a hierarchical cultural relationship may unintentionally have contributed to the maintenance of a still hierarchical social one.

The conclusion that Adorno reached was that an art which resists reabsorption into everyday life in the short run may help prepare the way for a more genuinely liberating unification in the future. The same might be said of other variants of hierarchy that now pervade our cultural life, such as the distinction between intellectual and other forms of history which Bouwsma wants us to reject.

We must not, of course, be merely complacent about the elitist aspects of the humanities as they are now conceived. Nor should we plead for some timeless canon of "great works". The exact content of what we privilege as higher than other aspects of our cultural experience must be constantly rethought and challenged. No specific reserved hierarchy is immutable, nor should any be guarded as such. Esoteric art is not forever superior to exoteric, whatever its present functions may be. But the process of establishing new hierarchical evaluations remains, at least for the foreseeable future, inescapable and worthy of our approbation. For only by holding on to the contradiction of culture, both false consolation and promise of future happiness, can we hope to move beyond the barbarism that its revocation would only confirm as the fate of even "civilized" mankind.

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## The editor on trial

Linda Nash illustrates the problems posed by three typical academic 'authors'

journals, each of which uses a different bibliographic convention.

The numerous foreign terms and mathematical expressions in the text are crystal clear in Dr Dithers' mind, but less so to an editor, as Dr Dithers uses a typewriter with no accents or symbols. Dr Dithers' cross-references lead to non-existent subsections, and his tables do not contain what the text suggests they do. He likes shallow tables and long thin diagrams, almost impossible to fit to a rectangular type area. Seventy illustrations are cited in the text, but he sends only 51, none of which is numbered, and identifying them takes a whole working day. Some turn out to be previously published material in copyright. Dr Dithers, when eventually reached by telephone, is dismayed to learn that (a) the photocopies of journal pages which he has sent cannot satisfactorily be reproduced by any known process, and (b) he has forgotten that he undertook to obtain the necessary permission to publish. The editor now has to write to eight different publishers in four different countries, none of whom will reply in less than three months although all will require a huge reproduction fee.

Important findings in Dr Dithers' field always come to his notice just after his text has been typeset, so he has to make enormous and expensive additions to his proofs. At page-proof stage one of his graduate students tells him that the key reference, cited 250 times, is not Smith (1979), as he has always believed, but Smith and Brown (1980). Editors know that it is worth going to the library to check Dr Dithers' reference list themselves, because he gets approximately one item in 10 right. Dr Dithers ignores the big black dots put by the typesetter in the page-proofs to draw his attention to missing page numbers, references and so on that only he can provide, but he carefully encircles each tiny blemish

caused by dust in the proofing machine. After the book is printed, Dr Dithers sends a postcard to give the correct form of the important equation on p183. But he will be pleased with his book and in time will come to believe he prepared it for publication himself. Professor Dreadnought sends an impressive-looking manuscript, produced in sepia on cream paper by word-processor (his retirement gift). The word-processing programme puts his name in eye-catching capitals at the head of every page, which makes the anonymous refereeing difficult. The professor has been convinced by the sales representative that the word-processor printout can be published just as it is, and it is in any case difficult to consult him about possible amendments to his text because he spends so much time at conferences in Sydney and San Francisco. Style editing, however, presents no problems — the professor learned to write good English at his prep school in 1922, and he has published so much during his long career that his manuscript consists through the hands of at least one editor already. The professor is not sensitive to modern preoccupations with racial and sexual discrimination and thinks metricalisation is a foreign plot, so editors should be on the watch for references to Chinamen, salesgirls, fathoms and furlongs: archaisms such as the Great War, the Colonies, or Röntgen rays may also slip in.

The professor has other identifying characteristics — he always calls his illustrations "plates", is fond of initial capitals, and dislikes sans-serif typefaces. He writes lots of little notes in the margins, headed "Printer!" He means well — these draw attention to possible editorial or typesetting ambiguities — but he has not realized that in the modern technology the printer does not actually see the manuscript. Fortunately for editors, every so

often they meet Dr Delightful. Dr Delightful has had to type her text at home on her old portable because the department is short of secretaries these days, but it is neatly done, spaced, including the reference list in the footnotes, which she knows need room for more, not less, editors marking than the main text. She has taken the trouble to visit a typesetter and so she knows why she should use four-centimetre side margins and why her last-moment additions should be typed on full sheets of paper, numbered consecutively with the rest. She has made a separate list of the up-to-date, specialized typographical conventions of her subject, and has consistently distinguished in her mathematical expressions between "i" and "l", "o" and "0", and upper and lower-case letter symbols. Her tables are sensibly designed around the dimensions of a realistically-sized page. Her parcel of manuscript arrives on time and includes all the necessary components, notably a complete set of illustrations, professionally drawn by a devoted technician. She is at her place of work from nine till five, where she can be reached with ease for discussion.

By the time proofs are available, editors are so grateful to Dr Delightful that they consider manipulating the text corrections so they are too few to be chargeable to her royalties, but of course the corrections never approach this stratospheric level. She prepared her manuscript carefully and needs alter very little at this stage, so because the typesetter had clean, to distracting copy, there are few line typesetting errors. She has conscientiously checked for these, understanding that nobody is infallible, and she playfully corrects them clearly without sarcastic marginal notes.

Dr Dithers, Professor Dreadnought and Dr Delightful each signed a contract containing a clause about proofing manuscripts "in a form ready for publication"; also, they will each pay royalties at the same rate. Although there is little justice in these facts, editors may console themselves with the thought that their efforts may have spared the author some reviewer's brickbats; if reviewers attack the content of the text, on the other hand, editors can modestly disclaim all responsibility.

The author is an academic editor at large publishing house.



Brian Holder reports on the great divide in the teaching of art and design at higher and further levels

## A matter of degree

Further and higher education in art and design could be compared to a forest, for there are within it many winding paths and sunny clearings. One feature intrudes. A bleak firebreak, cut years ago, still splits the landscape into two ranging tracts of creative activity.

These lands were once called "DipAD" and "Vocational", but are now known as "Degree" and "with halting objectivity, 'Non-degree'".

Over this metaphorical gap the two educational sectors view each other with various attitudes: there is slightly doubtful respect and volens in cunctis; and several types of plain indifference. In almost all other subjects such a firm dividing line, based mainly upon academic achievement at school, is the accepted norm; and where equivalent boundaries might be identified within the employing industries and institutions, it could be argued that students might as well be educated on one or other side of a similar fence. But in our changing industrial scene this argument holds little water.

One of the few things that employers and clients in art and design have in common (and they do not much like the idea of having things in common) is a longstanding scepticism concerning paper qualifications. Whether working in the fine arts or in applied design, or in the bulk of reality that lies somewhere in between, it is proven personal performance that counts. They have in front of them the most tangible and reliable evidence possible — the work itself.

Although there is some loyalty to specific courses and particular colleges, it is a recognition which still owes more to reputation than to factual knowledge of what is taught and how. Thus we have a fluid, pragmatic and communicative group of professions recruiting from an educational base which is administratively disparate, philosophically discordant, internally ill-formed and, as a result, politically vulnerable. One wonders how we came to have one of the world's most

respected and effective systems for educating artists and designers.

The strange shape of the system today is largely the result of random blows delivered to its various parts over the last 20 years or so. In 1963 the DipAD, already a distinct qualification among a previously tangled mixture of courses, was replaced by the much simpler DipAD. As a result, the existing division of the system was made firmer, forcing courses outside the scheme to rely on a motley bundle of local and regional qualifications, leaving them unevenly resourced and very much out of the limelight.

Some people might have denied that the system had become hierarchical, but the move of the DipAD courses in 1974 to BA degree status reinforced qualitative prejudices. A separation had become a stratification.

Having been defined as different in level and in emphasis of work, the sectors have each tended to affirm their identity by concentrating on the areas of divergence between them rather than by collaborating in the activities and aims which they shared. The intellectual complacency of the degree courses was matched by a grim self-righteousness in the vocational ones. The caricatures were expertly drawn: the Government the champion of vocationalism, the vocationalists the champions of the degree.

When the Clegg report of 1974 gave the Government the chance to begin rounding up the vocational courses into a coherent structure, eventually under the auspices of the then Technical Education Council (TEC), political security was offered in return for a package of greater accountability, more employable skills and closer industrial liaison.

TEC had its first effects in a non-advanced level where it has since done much to improve the standard of course planning and assessment, despite a ponderous administrative system and a disconcerting lack of clear

policy statement in the eyes of many colleges. There is no reason to predict a different effect at higher diploma level, although some streamlining has taken place.

Yet the gap remains, and students from either side fall into it in their attempts to cross over. Some are thrown, the victims of bad advice or inconstant assessment.

Degree and non-degree courses are usually physically separated, as well as where they do exist in the same college they tend to work in distant related subjects under the control of different departments, frequently on remote sites.

At foundation and diploma level, courses often work side by side, and as unhappy bedfellows. It is a pity that at this level, where the students are most vulnerable to the prejudices and partiality of their teachers, one can find the most contentious opinions expressed and the most profound disagreements unresolved.

The familiar tales of teaching teams hardly speaking terms are quite plausible. One has only to attend the odd conference or to encounter the even odder corridor campaigner, to sense a widespread resentment, in some places conflict has been neutralized by combination; more than 75 per cent of DATEC diplomas in general art and design are direct conversions of previous foundation courses, now feeding into both BA and HND degrees. The multi-level system, but a policy of mixed dissolved collective endeavours while allowing free individual opinions to flourish.

However, the system has not been able to do much to improve the standard of course planning and assessment, despite a ponderous administrative system and a disconcerting lack of clear

degree side, the gradual consolidation of DATEC has done very little to stimulate a dialogue with any effective relevance to studio teaching. One can list the points of contact:

- in some colleges course leaders meet at academic board meetings;
- there is reciprocal representation at the infrequent meetings of the college-based associations;
- there are a few schemes for the sharing of resources where colleges are controlled by the same local authority;
- senior staff from colleges meet when sitting on regional advisory councils and a small number of other specialist committees;
- individual officers of the validating bodies meet informally and irregularly without recorded discussion of policy;
- above it all are the HMIs and the QEBs, maintaining an overview not let to those beneath.

Such a list might seem impressive until one visualizes the sums of money and the numbers of people involved; in the light of which one might regard the amount of liaison as a shade pessimistic. It is not actually coincidental. But of late there has been less muted acknowledgment that some further cooperation might be a good idea. For now there is the National Advisory Body.

Whether we shall see a closing of the gap, a unity in adversity — one cannot say. The current Council for National Awards, a consultative body, contains a number of proposals which could parallel the higher diploma activities of DATEC. Shorter courses, sub-degree, modular credit transfer, part-time, modern more flexible admissions policy, all areas where others presently tread.

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## BOOKS

### Earnings related

by Colin Harbury

Parents and Children: Incomes in two generations  
by A. B. Atkinson, A. K. Maynard and C. G. Trinder  
Heinemann Educational, £15.00  
ISBN 0 435 82097 4

Notions of deprivation and privilege evoke strong emotions, both angry and defensive, especially when associated with the accident of birth. Whether or not we ought to try to move along the road of a more equal society must partly depend on knowledge of facts about the extent to which the accident of birth does actually confer benefits or detriments. As far as economic facts are concerned evidence is scanty.

Although a fair amount of work has been done on social mobility and the interactions between occupation and education for different generations of families, and there has been some research on the effects of inheritance on the distribution of personal wealth, there have been, until now, no studies at all into the association between the incomes of parents and children in Britain. Hence the importance of this book, which is the single one of ten "studies in deprivation and disadvantage", undertaken under the auspices of the DHSS and the SSRC, to be devoted to economic issues.

The book is in fact a report of an investigation designed to throw light on what may be described as income mobility, which is essential to complement information about the size distribution of incomes. Indeed, one might go so far as to say that a society's view of the acceptability of a given degree of inequality could depend crucially on mobility. If the actual people at the top and bottom of the distribution are continually moving up and down, one might be more content with a greater extent of inequality than otherwise.

There are several approaches to the quantification of mobility. All have advantages and disadvantages. That chosen by Atkinson, Maynard and Trinder is a so-called record-linkage study, working forward from data relating to a past population and tracing members of the next generation of children, to obtain information from them. The method produces results in a relatively short period of time (compared to a longitudinal study), but depends critically on there being a good quality past survey from which to start. The survey selected was that by Rowntree and Lavers in the City of York in 1950.

Seeborn Rowntree, social reformer and chocolate manufacturer, had made two surveys of poverty in York prior to that of 1950. On the face of it, his last and most experienced work might have been expected to prove otherwise. Apart from certain decidedly questionable research procedures relating to some 2000 odd interviews which were claimed to have been carried out, only about two thirds of the original schedules of data collected turned up in the Rowntree papers at the University of York.

These facts are mentioned here, not to discredit Rowntree, whose pioneer work must be recognized, but to emphasize the extent of data problems that Atkinson and his colleagues had to face, and to pay tribute to the care and ingenuity with which they set about their task. Not only did they have a large amount of missing material to cope with, however, a major deficiency of the survey was that it was, by design, limited to "working-class" households, in which Rowntree had a particular interest. Quite apart from the rather rough-and-ready interpretation given to the meaning of this term, the nature of the sample meant that it was truncated at the upper end, and therefore less suited to the measurement of income mobility

than a random sample from all income ranges which would allow a better analysis of movements around the top of the distribution.

There is also the issue of the representativeness of a sample confined to York. The authors of the 1950 report had expressed the hope that conditions of life in that city might be taken as fairly representative of those in many, if not most, provincial towns. Yet York was, and remains atypical in several important respects. It is industrial structure, for instance, is heavily concentrated in food, drink and tobacco and transport (mainly confectionery and British Rail) and it has had lower unemployment rates and fewer employees in low wage industries than the national average. Despite these points, the research team felt that a reasonably valid starting point for their work. In view of the complete absence of quantitative data on income mobility in the UK and the lack of a better alternative, there is little doubt that their decision was the correct one.

Moreover the Rowntree sample possessed one characteristic that made it eminently suitable for the purpose — it had been taken almost exactly a generation before the new inquiry got underway. The income of this is emphasized by the authors. Since income is typically and heavily age-related, it is essential to try to make income comparisons between persons at similar stages in their life cycles. Otherwise income differences may reflect age differences as much as, or more than, anything else. This was the pre-eminent advantage of the Rowntree survey. Almost three quarters of the sample interviewed in 1975-78 were within 10 years of the ages of their parents when they had been interviewed in 1950.

Once the decision had been taken to use the York survey for record-linking, the major task began of tracing offspring and obtaining information from them on income and other

characteristics. This turned out to be relatively simply done through local directories and electoral registers in about a third of the total number of cases. The remainder were classed as "difficult to trace" and called for what was essentially detective work. Since this study was the first of its kind, the authors were wise to confine their searches to a sample of such cases in an endeavour to avoid unnecessary bias and to gross up accordingly. The end product was a "success rate" of about 75 per cent in tracing children (or establishing that none had survived). This gave an overall total of more than 2000 second generation families in the follow-up survey. About half were interviewed and another 165 were sent postal questionnaires. Response rates were very satisfactory, especially in view of the sensitivity of some of the questions on personal income (Rowntree and Lavers had got their income data from employers). Over 80 per cent provided the full information requested. If partial replies are included the response rate was almost 90 per cent — compared to the typical maximum response rate of 50 per cent to the family expenditure survey conducted by the Department of Employment.

To understand the evidence on overall income mobility, it is necessary to appreciate the precise definitions used for two of the three categories: "low income" and "comfortably off". The former is defined as income below 140 per cent of the national assistance/supplementary benefit scale, which has frequently been taken, by Townsend and others, as the basis for studies of poverty. The latter is defined as income of 200 per cent or better than the same scales. The third category, "intermediate", falls between the two, as expected. Accepting these as one valid basis for comparison, a considerable degree of mobility emerges. Of the 465 Rowntree children whose parents were in the lowest income class a third had moved into the intermediate group and nearly a fifth further up into that of the comfortably off. That is one way of looking at the facts. An alternative which emphasizes the limits to mobility is to note that those from the lowest income group stood a two and a half times higher chance of remaining there than of moving into the top income category.

Particular interest attaches to the upwardly mobile "movers out" and their counterparts, the "movers in". The evidence suggests that the former tended, inter alia, to be those who had also moved out of York, while the downwardly mobile were on average from relatively large families.

The results discussed so far relate to overall mobility of income from all sources (that is, including interest and so on, as well as wages). When the authors subjected the data on earned income alone to analysis, the association between parents and children became a good deal stronger. For instance, the probability of being a low-paid Rowntree child was 45 per cent if the father had also been low-paid, whereas it was a mere 4 per cent if the father had been in the top income category. Indeed, the regression coefficient between the incomes of the two generations turned out to be very close to the classic figure discovered by Galton in the last century between the heights of fathers and sons (0.5). Applied to incomes it means that a son's income tends on average to be about halfway between the income of his father and average income. It should be added that upward mobility was more likely than downward to be substantial — jumps up, but rickles down.

Strong correlation does not of course explain anything in other than a purely statistical sense. The search for causality calls for identification of characteristics which might have real explanatory power. The authors, therefore, examine in some detail evidence relating to such matters as education, family background, access to apprenticeship and the structure of the labour market in York city. A complex pattern of relationships emerges.

Some of the most interesting findings relate to education. It is clear that father's income is positively associated with length of schooling. The authors consider also, however, academic achievement in terms of GCE passes, degrees and other qualifications as well as the prospects of attending selective schools for children from different income classes. Two outstanding disadvantages experienced by those from low income families were related to length of schooling and the probability of attending selective schools (though daughters did rather better than sons at this). Curiously enough, the former disadvantage did not apply to such children who had succeeded in securing selective places. They left school, on average, no earlier than those from higher income groups.

Space precludes further discussion of the results and one must congratulate Messrs Atkinson, Maynard and Trinder for the imaginative ways in which they managed to extract so much from a data base of very varied quality, and with limited resources. The book is both informative and readable, partly because it is a shorter and less technical version of the full report which, though unpublished, is publicly available for consultation. Though the entire subject matter positively bristles with policy implications, the authors have properly exercised restraint in avoiding discussion. There is at least one other book to be written about them.

Further research is undoubtedly needed on the question of income mobility, as the team itself recognizes. A broader and more representative sampling frame would be particularly desirable. Since no suitable existing survey fills the bill, a longitudinal study is probably the answer. It would be a generation before it could yield much way of conclusions, but that is no reason not to start one today. Perhaps one of the philanthropic foundations could be persuaded to fund it, now that Atkinson and his colleagues have shown the way. It could be designed to include relevant information not considered so far. One in particular strikes me as potentially interesting — that of marriage patterns. Assortative mating is known to be widely prevalent in characteristics as far apart as arm span and personal wealth of fathers. It would surely, one feels, affect the chances of an individual staying in the same income group as his or her parents.

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# BOOKS

## A new Trevelyan?

A Social History of England  
by Asa Briggs  
Weidenfeld & Nicolson, £11.95  
ISBN 0 297 78074 3

The historian's task is not confined to research and the writing of monographs. There is also the need to present this work to a wider audience. Beyond the bounds of specialist readers, it is a difficult, exacting, and for some historians, a distasteful job, making demands which often seem quite contrary to the traditions of scholarship.

Yet if historians are to be anything more than a small group of academics talking among themselves the necessity for "outreach" is clear. Moreover, if the historians themselves do not shoulder this obligation others, perhaps less competent, will do it for them, since the interest in history is present and waiting to be tapped. Among modern historians none has understood this better than Asa Briggs, whose career has been a remarkable demonstration of his belief that the historian should not sit in an ivory tower but get out into the world. His latest book will be eagerly read as a model by one of the leading practitioners of "haute vulgarisation".

A Social History of England is an authoritative survey stretching from prehistory to the present in 13 chapters arranged chronologically. It is a synthesis of what are now regarded as the main themes in each period, presented with that perceptive eye for telling detail and written in that lively style which is the hallmark of Briggs's best work. Inevitably the shades of his beloved Victorians hang heavily over the book, and not only in the later chapters, for even prehistory is approached through nineteenth-century perceptions. This has the effect of binding the book together, and is a skillful technique which is used throughout. Thus Shakespeare is brought in to comment on Roman Britain, the fourteenth century is introduced through William Morris, and seventeenth-century slavery is linked with West Indian immigration in the twentieth century.

In an undertaking of this sort any historian has to rely heavily on the work of others, and he is forced into making generalizations in areas where his competence is limited. All too frequently he has to fall back on phrases such as "It has been suggested that..." or "Some historians have thought that...". While this may usefully convey a sense of the differences of interpretation among scholars, it may also leave less informed readers with a feeling of bewilderment. With a coverage as encyclopaedic as Briggs's it is virtually impossible to escape from this dilemma.

The book invites comparison with G. M. Trevelyan's bestselling *English Social History*, first published in 1942. Indeed, the blurb on the dust jacket suggests that it is intended as a replacement for Trevelyan, and in his introduction Briggs himself is sympathetic to Trevelyan's approach while differing from it in important respects. It is therefore instructive to consider how the new *Social History* differs from the old.

First, Briggs's definition of social history is not Trevelyan's famous "history of a people with the politics left out". Instead of such a negative approach, Briggs proclaims: "Social history is the history of society. It is concerned with structures and with processes of change. Nothing is too trivial for it. Nor has any revolution, even the most ephemeral, been ignored." One result of this is that Briggs's book becomes virtually a general history, though admittedly with a strong social and economic bias, and with only intermittent, and therefore sometimes confusing, reference to political events. Second, there is simply a shift in the range of themes and the range of the disciplines is much greater, reflecting

the changes in historical scholarship over the last forty years. At times there is almost too much, and one is left with a feeling that the author tried too hard to "get it all in". Without ruthless selection a catalogue effect is hard to avoid, and there is not enough space to deal with a satisfying length with individual themes. The burden of the sheer amount of recent learning is apparent in the need to make continual qualifications to every generalization; though this certainly brings out the enormous complexity and contradictions of history. Third, the study is extended at either end. Whereas Trevelyan started only with Chaucer's England and ended with the death of Queen Victoria, Briggs is fascinated (one of his favourite words) by Stonehenge and even manages to squeeze in a reference to the Falkland Islands campaign in his final pages.

A Social History of England is a tour de force, the fruit of a vast amount of reading and historical experience. It is of course a personal statement, and for those familiar with Briggs's past work the priorities,

selections, and turns of phrase are not unexpected. There is no over-arching conceptual theory to unify the book; simply a concern with the dynamic interplay of continuity versus change in the experience of individuals and groups. Chapters have such all-embracing titles as "Dependence, Expansion and Culture", or "Problems, Opportunities and Achievements". Some omissions may surprise. For instance, Chartism, although well represented in the illustrations, is only mentioned in passing, and Robert Owen and the Owenites do not appear at all. However, the old stalwarts like Walter Bagehot, Samuel Smiles, Matthew Arnold and the great Victorians generally are brought in to do their duty nobly; and even Mrs Thatcher's remarks earlier this year on Victorian values are quoted (and, alas, misprinted).

The big question of course about a book of this nature is: for whom is it intended? The publishers, encouraged no doubt by the record of the Trevelyan bestseller, have obviously had to print a vast number of copies to be able to sell such a lavish pro-

duction (beautifully produced, with over two hundred illustrations, including 37 colour plates and a series of historical maps) at such a reasonable price. For serious students the book has limitations. Despite the large number of quotations, there are no footnotes or references of any kind. Neither is there a bibliography, nor any suggestions for further reading. The index is far from comprehensive and cannot be relied on. Perhaps then this is history for the masses? Hardly. Rather it would seem to be history for the book club readers. Who exactly they are nobody seems to know. They may be the same as Everyman or that famous publishers' construct, "the intelligent general reader". They are certainly well served by this handsome volume, which, as the Victorians would have said, provides both amusement and instruction.

J. F. C. Harrison

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London crossing-sweepers in the 1940s, a photograph taken from *The Making of Modern London 1815-1914* by Gavin Weightman and Steve Humphries (Sidgwick & Jackson, £11.95 and £7.95).

## Provincial tour

Metropolis and Provinces: science in British culture 1780-1950  
edited by Ian Inkster and Jack Morrell  
Hutchinson, £17.50  
ISBN 0 09 145180 9

In the 1960s historians rediscovered the glories of British provincial science. Two books in particular, R. E. Schofield's *Lunar Society* and A. E. Musson and R. Robinson's *Science and Technology in the Industrial Revolution*, argued that two centuries back it was in the regions (especially in Birmingham and Manchester) that science was advancing most spectacularly. Spurred by mechanical need and workshop experience, science accelerated technological transformation to the early days of the Industrial Revolution.

Historians of the 1970s, including many of the contributors to this volume, continued to be impressed in another way, through sociological lenses. What counted for these "new" scholars were not scientific breakthroughs *per se*, but the question: why was science so attractive to provincials? This meant examining which social groups pursued science, what it meant to them, and how they used it. From this socio-cultural perspective, scholars like Asa Briggs, Jack Morrell, Steven Shapin, and Ian Inkster came to depict science as a radical yet also socially legitimizing. Doing science was a kind of visiting

card flourished by "marginal men"—doctors, dissenting ministers, educators—in their bids for upward mobility in provincial manufacturing society.

In turn, London science was also reinterpreted from a sociological perspective, which gave prominence to the cult of the amateur. The ideology of "amateurism"—the disinterested pursuit of truth for its own sake—enabled aristocratic savants and patrons to head metropolitan organizations such as the Royal Institution long after science was professionalized in Germany and France.

The present volume makes a distinguished contribution to this tradition. It comprises nine new essays, all ably researched and crisply written. The first, by Inkster, surveys the state of the art, spelling out, in a helpful and self-critical way, the presuppositions of his own researches. Three then examine metropolitan science: Roy MacLeod's study of the reform of the Royal Society in the 1830s and 1840s, J. N. Hays's "yellow pages" and the scientific lecturing in the first half of the nineteenth century, and Paul Weightman's epistolary reformation of the British Mineralogical Society, which, though short-lived, was energetic and productive.

Five essays then tour the provinces. Shapin looks at the diffusion of scientific knowledge among the Birmingham petty-bourgeoisie in the 1840s; an entertaining tale of misadventure between greater and lesser men; Michael Neve probes the case of the late eighteenth-century Lancashire and Yorkshire Societies and Jack Morrell shows how utilitarianism and the new science were linked in the Victorian era.

ly, Michael Durey examines the cholera epidemic of 1832 to bring out the low and dependent status of provincial medical practitioners.

These stimulating essays bear out the fruitfulness of "cultural" approaches to the history of science, though many initially seemed so promising get a real word for the concept of "professionalization" and several authors are troubled by the nebulousness of the idea of "marginal men" (marginal to what?). In a previous essay, for example, Inkster has argued that a particular group of London savants—the "Athenians"—were "marginal", because they were young and Quaker. But Weightman tells his editor that this will not do: the same men—snapped from another angle—actually appear rich, well-connected and esteemed for their philanthropic activities. For his part, Neve boldly dismisses the habitual association of provincial science with "outsiders": in Bristol at least, early Victorian science was quintessentially the tool of alert, establishment Peelite Tories.

Perhaps, then, these essays show a research programme at its peak, about to fragment and decay. Indeed, most of the pieces were written several years ago, and some have already been overtaken by new research, partly through Morrell's own study with Thackeray, of the British Association in *Gentlemen of Science: early years of the British Association for the Advancement of Science* (Clarendon Press, 1982). My guess is that we are seeing the last of the "marginal men".

Roy Porter

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## Socialist strategies

Labour and Socialism: a history of the British labour movement 1867-1974  
by James Hinton  
Harvester Press, £15.95 and £5.95  
ISBN 0 7108 0154 8 and 0184 X

Let it be clear that it is not to be a politician's party but an agitator's party. . . . The people's real hope and strength lie for the present in the industrial field. When they are strong enough outside Parliament to enforce their demands, then will be the time for direct legislation and administrative action.

So spoke a former Independent Labour Party stalwart as the British Socialist Party was launched in 1911. His words are quoted with a degree of approval by Dr Hinton—and do quotation gives some of the flavour of his stimulating account of the British labour movement.

Whereas G. D. H. Cole and Raymond Postgate in their famous book *The Common People* (1938) give the impression that the political left was synonymous with the common people, James Hinton is careful to define his subject as "movement working on behalf of the poor", rather than movements of the poor. His book is about how the British labour movement has tried to achieve social justice. This provides not only clear cut theme but also a test for judging the groups and notables in the movement. Thus Hyndman and the Social Democratic Federation are condemned as being too dogmatic, while the anarchists are dismissed as "those who preferred the bomb to the working class as the agency of human liberation".

A critical issue for James Hinton is the realism, or lack of it, in the various strategies proposed for attaining a socialist society. In discussing a period before the First World War he observes that "the central concern of British socialism remained the abolition of poverty rather than the abolition of capitalism itself". He is not too impressed by the strategies of the syndicalists or the advocates of Direct Action in 1919-1920: they suffered from "illusions of the revolutionary potential in trade unionism". He condemns the Labour Party, especially after 1926, for its narrowly electoral politics. "Whole areas of potential mobilization—the street, the housing estate, the workplace—were systematically fenced off by the nervous and contradictory leadership of an increasingly bureaucratized movement".

For much of the period the body which comes closest to satisfying him on socialist strategy is the Communist Party. In his last chapter Dr Hinton briefly discusses the period since 1951 and "the crisis in the old labour movement". He looks to a renewal of socialist politics coming from the left, socialism coming to terms with feminism, environmental, anti-nuclear and other such groups. This may well be part of the answer. The experience of recent times including the 1983 general election, however, suggests that support for Labour on their issue but not more generally.

Dr Hinton's theme gives little room for the religious or ethical value to British socialism: the former receives only one paragraph and Bruce Grier's notion of fellowship is seen only as "a maudlin sentiment". Yet, whether Christian or humanitarian, there are many in British society who are repelled by Thatcherism on ethical grounds. The book has the merits of providing a clearly argued point of view about the weaknesses inherent in the British labour movement and the work of G. D. H. Cole. It is committed history. While it covers a shorter period, it can nevertheless be seen as the successor to *The Common People* that we have long needed. It should find a wide readership in higher education circles. Above all it is a book which activists in the British Labour movement will want to read and will read with profit.

Chris Wrigley

Dr Wrigley is senior lecturer in economic history at Loughborough University.

# SCIENCE JOURNALS

## Coasting along

Continental Shelf Research  
edited by Michael Collins and R. W. Sternberg  
Quarterly  
\$35.00 per annum (individuals),  
\$85.00 per annum (institutions)  
published by Pergamon Press  
Coral Reefs  
edited by David R. Stoddart  
Quarterly  
DM128.00 per annum  
published by Springer

The life cycle of the common scientific journal is now well understood. To be viable it needs contributors, editors, publishers and regular subscribers, each group concerned with its own interests but dependent on the activities of the others. Conception is thought to proceed from an alliance between potential editors and potential publishers, but the details have not been reported. However, the process of gestation is both public and prolonged. Other working editors are recruited; an advisory team of distinguished additional editors is assembled and consulted about the form and content; invitations are sent soliciting papers from potential contributors; libraries are invited to subscribe.

At this early stage a wide appeal attracts most interest. Editors and contributors, drawn equally from Europe and North America, should represent all possible aspects of the subject area. Both of these new journals conform to the pattern of the species. In addition they both have the genuinely commendable aim of promoting a coordinated approach to that most interdisciplinary of sciences, oceanography.

Continental Shelf Research complements Pergamon's well-established *Deep-Sea Research* and their review journal, *Progress in Oceanography*. It is intended to fulfil the need for a journal dedicated to research contributions from scientists and engineers studying the continental shelf environment. The physiography is well defined, but the scientific scope is quite general. Articles dealing with the results of fundamental and original research in physical oceanography, chemistry, ecology and sedimentology, for example, are considered for publication. The editors intend to place emphasis on interdisciplinary process-oriented contributions, and on the publication of results from innovative experimental studies with general applicability. This need to focus continental shelf studies has also been recognized by the recent renaming of the Academic Press *Estuarine and Coastal Marine Science* as *Estuarine, Coastal and Shelf Science*. Although these two new journals have the shelf in common, Pergamon's aim to be distinct from those dealing with estuarine and coastal research.

Although several of the papers in the first volume are of a very high standard, and their topics cover many disciplines, the difficulty which the editors will have in attracting truly interactive papers is already apparent. Notable exceptions are multi-author papers from teams at the Menai Bridge and Marine Biology Association laboratories, and from some groups in the United States. Despite their individual merit, several long single-author papers in this volume are unlikely either to have resulted from or to stimulate much interaction.

Coral Reefs is described as a joint venture between the recently founded International Society for Reef Studies and Springer, members of the society automatically receiving personal copies. Coral reefs are described as one of the world's most diverse, complex and vulnerable ecosystems; and this new journal aims to publish original and theoretical papers on the modern and ancient reefs. The emphasis is on experimentation, modelling and quantification.

ification in reef studies—mere collectors are warned that the "inventory approach is now largely completed".

It also hopes to bridge the gap between the different disciplines concerned with reef investigations, particularly between the physical and biological sciences. Biological and geological aspects predominate in the first volume, whereas physical and mathematical approaches are conspicuously absent. The gap to be bridged is very wide, perhaps because the physical oceanography of the shallow turbulent reef areas is extremely difficult to address in terms of models which are amenable to mathematical solutions. Alone, a journal cannot promote an interactive approach just by publishing alien studies in the same volume, but *Coral Reefs* may well serve to develop contacts made through the society itself.

New journals take a few years to establish themselves in the pecking order of the species. The first volume are not always representative of the mature publication, so that any early judgment must be based on the statements of editorial policy rather than journals' contents. Both these journals are addressed to identifiable needs, and it is encouraging that even during times of severe financial constraint, publishers are able to respond. Although the editors have made firm commitments to the ideal of several scientific skills being applied to the same problem, real interaction calls for more than publication in the same journal: scientists have to work and perhaps suffer together on the same ship or coral island, before real communication is possible.

Individual compatibility is a critical factor. These things are not easily arranged, nor is progress guaranteed; but for those willingly involved the work can be stimulating and enjoyable. Oceanography needs more interaction between its component scientists, and for this reason alone oceanography libraries should welcome these two journals. They will certainly continue to attract and publish good papers, but bridging the scientific gap is more demanding. Will they succeed? We can only adopt the observational approach: wait and see.

David Pugh

David Pugh is with the Institute of Oceanographic Sciences at Bldston, Merseyside.

## A matter of survival

Journal of Protein Chemistry  
edited by M. Zouhair Atassi  
Bimonthly  
\$108.00 per annum  
published by Plenum Press  
Biochemistry Reports: short reviews and reviews in molecular and cellular biology  
edited by C. A. Pasternak  
Monthly  
\$95.00 per annum  
published by the Biochemical Society, 7 Warwick Court, High Holborn, London WC1

When I first became responsible for my departmental library three or four years ago, hardly a month went by without my receiving an announcement of "eight new journals" or something similar from many large publishing houses. Perhaps they still come, but I have ceased to notice, and in any case the numbers of new journals certainly exceed any demand or need for them in the disciplines they purport to serve.

Of all the primary research journals in the general area of biochemistry that have appeared in the past decade, I know of only two. *Nucleic Acids Research* and *Cell*, that can be called "seminal" journals, are both of them. *Nucleic Acids Research* filled an obvious gap in the literature



Flair, a computer graphics system devised by the British Broadcasting Corporation for use by graphic artists, can be used to "draw" cartoons. This illustration is taken from *Image and Vision Computing*, the first issue of which was published by Butterworths earlier this year at £75.00 per annum (single issues £22.50). Published quarterly, the journal intends to cover all aspects of the relationship between computers and vision.

produced by the very rapid growth in the subject, whereas *Cell* did not so much find a new gap as take over an existing one that the prematurely elderly *Journal of Molecular Biology* was failing to exploit. These seem to me to illustrate the only ways in which new scientific journals can be launched with any hope of success, yet the flood continues.

*Journal of Protein Chemistry* is clearly aiming for the prestige and edge of the market. Its large editorial board headed by M. Z. Atassi consists mainly of people I have heard of (49 of them to edit the 19 papers published in 1982). Papers are in general of high quality, although I would guess that a significant proportion of them published so far have been invited rather than genuine submissions. None the less, I cannot see a real need for a new journal in this area, as most of the papers published could find a home in any of the leading biochemistry journals, where they would be more likely to be read. The founders may be hoping to emulate *Cell*, having noticed that the section of *Biochimica et Biophysica Acta* devoted to proteins and enzymes is the weakest section of that journal, but there are at least four other journals publishing excellent papers on these topics. First published in 1982, with 340 pages, the size of *Journal of Protein Chemistry* will almost double in 1983, as will the price (from \$57 to \$108 for libraries).

*Biochemistry Reports*, now in its third volume, is a rapid-publication journal that aims to publish a wide variety of interesting and significant papers within about two months of receipt. If one can believe the stated dates, it certainly achieves the aim of rapid publication, with most papers appearing in the month of receipt or the month afterwards (although a date of receipt of the 25th April 1983 for a paper in the issue of April 1983 may give rise to a little scepticism). Papers seem to be of high standard, with a significant proportion by well-known authors.

As I believe that fewer than one per cent of the papers that appear in rapid-publication journals are in any more urgent need of publication than most other papers, I shall not comment on the urgency of the material in *Biochemistry Reports*. More important, as this new journal will have to compete not only with the well-established and thriving *FEBS Letters* and *Biochemical and Biophysical Research Communications*, but also with another newcomer, *Biochemistry International*, its chances of success at a time when libraries are anxious to reduce their subscriptions can hardly be rated very high. None the less, I was more impressed with the three issues sent to me for review than I expected to be, and I hope the journal will do well.

Athel Cornish-Bowden

Athel Cornish-Bowden is lecturer in biochemistry at the University of Birmingham.

Publishers were requested to send for review the three most recent issues of any science journal that had appeared for the first time since January 1980. The following collection of reviews is based on a selection of those received. A list of journals of which no reviews were commissioned, appears on page viii.

## Novel peptides

Regulatory Peptides  
edited by S. R. Bloom and F. E. Bloom  
Monthly  
DM1630 per annum  
published by Elsevier Biomedical  
Neuropeptides  
edited by M. J. Brownstein and J. Hughes  
Bimonthly  
\$44.00 per annum  
published by Longman

In recent years, a variety of novel peptides have been found in the brain, many of which were first discovered in endocrine glands or in cells within the gastrointestinal tract. Inevitably, this has led to a phenomenal output of papers describing their distribution in various tissues as well as their effects on various parts of the body. What has emerged is that these peptides regulate cell and tissue function in disparate parts of the body—hence the term "regulatory peptides".

Neurotransmitters are the chemical messengers that convey information from one nerve cell to the other within the nervous system. Most of these

peptides probably act in this fashion or interact with other neurotransmitters. The neuronal pathways containing peptides are diversely branched and may affect the brain in a rather diffuse fashion.

In view of their existence within neurons, and at the low count there were 31 such peptides, they are sometimes called "neuropeptides". These neuropeptides often co-exist together with monoamine neurotransmitters within the same cell and are released from its nerve terminals. These peptides and the monoamines provide, therefore, a rich diversity of chemical messages within the nervous system. It is now clear that these peptides have behavioural as well as somatic effects in the body and may be involved in both mental and neurological disease.

The seemingly endless stream of papers defining the function of these peptides has resulted in the appearance of new journals. Long-established journals such as *Brain Research* and *Neuroendocrinology* will carry many papers dealing with their effects but such journals must also cope with other unrelated work. As a consequence, more specialized journals have appeared including *Regulatory Peptides* and *Neuropeptides*. Both these journals provide prompt publication of interdisciplinary studies on the physiological and pathological role of these peptides.

The scope of *Regulatory Peptides*, an attractive journal that is edited by two luminaries in the field, is indeed wide, and any copy will contain contributions from the most reputable laboratories. *Neuropeptides*, which is edited by two highly distinguished scientists, is a current-referenced rapid-publication journal and carries as a valuable appendix the monthly bibliography on neuropeptides prepared by the University of Sheffield, Biomedical Information Service, which should enable scientists to trace current papers of interest at a glance. The fact that papers appear within six weeks of acceptance makes it a most attractive journal in the race to be "first". When this newest journal reaches a wide audience, the quality of its contributions should improve; at present, they are not all of the same high standard. Nevertheless, it is obviously a journal with great potential.

Mortyn Jones

Mortyn Jones is reader in reproductive physiology in the department of gynaecology at St Thomas's Hospital Medical School, London.

## Biology at the poles

Polar Biology  
edited by G. Hempel  
Quarterly  
DM168.00 per annum  
published by Springer

Generations of polar biologists have had to distribute their findings across a wide range of publications from monolithic expedition reports in the general biological literature, and to one or two non-specialist, interdisciplinary polar journals. Although this has forced them to minimize their awareness of trends in the non-polar biological world, the polar biologists have a formidable hazard to newcomers. These in turn may be all too easily tempted to specialize early—to find their cosy corner and stay in it. All of which may help to explain why there are so many specialists in polar biology and so few with a broad outlook—above all why the bi-polar biologist is almost unknown.

First published in July 1982, *Polar Biology* has produced six issues by July 1983. It will presumably settle to a less frenetic pattern of annual volumes and quarterly numbers. Dr Hempel, the managing editor, heads an impressive international team of editors and advisers.

ory editors, whose stated intention is to present "results of all kinds of studies in plants, animals and micro-organisms of the polar and subpolar regions". Will it help?

Although this statement of editorial policy suggests that it could, there is room for doubt. A most useful service that a new journal could perform would be to attract reviews and syntheses that might help polar biologists in related fields to understand each others' work and guide newcomers through the literature forest. Although one good review in each issue would be welcome and two would be a blessing, what we buy in the first six issues are some 46 papers, with few exceptions reporting new work in relatively narrow fields—40 of them are exclusively Antarctic and only one bi-polar in approach. About one-third concern terrestrial plants and one-third are on Antarctic plankton, with *Euphausia superba* the star attraction—thus taking very literally the editorial injunction that "papers must present results which are essentially new".

I hope that the editors are not, in emphasizing their desire for new results, discouraging the new thoughts, new concepts and new approaches to polar biology that many of us would find equally interesting.

Bernard Stonehouse

Bernard Stonehouse edits "Polar Record" at the Scott Polar Research Institute, University of Cambridge.



## Wiley JOURNALS

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Professor S. Sasaki, JapanA communications medium for the laboratory scientist, centering on mini- and micro-computers, their applications in the control and operation of spectrometers and the acquisition and evaluation of data software and user-developed programs, hardware and the man-machine interface.  
Vol. 2 (1984) Quarterly  
UK: £55.00  
Elsewhere: US \$115.00

## SOFTWARE PRACTICE &amp; EXPERIENCE

Editors

Professor D.W. Barron, UK  
Dr C.A. Lang, UK  
Professor D.R. Hanson, USASOFTWARE caters for the software writer with the emphasis on conveying the results of practical experience for the benefit of the computing community. Both "systems" software and "applications" software, for use in batch, multi-access, interactive and real-time environments are included.  
Vol. 14 (1984) Monthly  
UK: £115.00  
Elsewhere: US \$225.00

## International Journal for Numerical Methods in Engineering

Editors

Professor O.C. Zienkiewicz, UK  
Professor R.H. Gallagher, USAThis journal provides a common platform for the presentation of papers and exchange of views on numerical methods, used to solve a variety of engineering problems in such areas as heat transfer, structural analysis, fluid mechanics, and electronics.  
Vol. 20 (1984) Monthly  
UK: £180.00  
Elsewhere: US \$395.00

These are just three of the many journals published by Wiley. A detailed prospectus containing information on the full list can be obtained by writing to the Journals Department at the address below.

John Wiley & Sons Limited  
Baffins Lane, Chichester, Sussex PO19 1UD, England

## Optimal control

Optimal Control: applications and methods  
edited by B. L. Pierson and M. J. Grimble  
Quarterly  
£70.00 per annum  
published by Wiley

Control engineering lies, together with electronic and electrical engineering and computer science, at the heart of the new technological revolution concerned with industrial automation, signal processing, information technology, and robotics. The concept of "control" can be briefly described as the problem of obtaining desired behaviour characteristics from a system by on-line collection of data and the systematic (computer-aided) processing of the data as an aid in decision making.

These basic problems occur in almost all branches of engineering, economic decision-making, biotechnology, and some branches of medicine. The field is therefore inevitably interdisciplinary, with an importance that is rapidly increasing as process plants increase in complexity and demands grow to increase efficiency, reliability and safety and to minimize

usage of natural resources.

Optimal control is a distinct and self-sufficient branch of control engineering that is concerned with, in rough terms, obtaining the "best" performance from a system. For example, it may be necessary to operate the plant to minimize energy consumption and hence cost. In general, the notion of "best" is formulated mathematically by requiring the decision-making procedure to minimize or maximize a performance index devised to represent quality of control. The main problems of research interest are the analysis and characterization of optimal controls and the construction of efficient computational procedures, but the ultimate objective of the programme is the implementation of the resultant computer control scheme on industrial plant.

The majority of journals with interests in optimal control cater for theoretical studies. In contrast, this new journal has an active editorial policy of attracting papers devoted to applications. Its main aim seems to be to act as an international forum for applications studies to enable theoretical researchers to identify the wide applicability of the ideas and unresolved problem areas and to give researchers with an interest in one specific applications area some insight into problems arising in others. The international interest is illustrated by 23 papers published in the last three issues with authors from over 11 countries worldwide. These papers also indicate the success of the journal in attracting papers from many applications areas including population control, orbit transfer, resource allocation, guidance, robotics, waste water treatment, control of chemical plant, ship manoeuvring, and political lobbying. The journal has, in fact, a sound

interdisciplinary base, the papers originating from university departments of control, mechanical, and electrical engineering, fluid mechanics, mathematics, materials science, and humanities and social sciences, together with contributions from a number of industrial and government laboratories, including the National Aeronautics and Space Administration.

The journal contains a number of good quality papers and there is no doubt that it fills a gap in academic publishing. However, optimal control, with the exception of the related notions of optimal filtering, is only one aspect of control methodology. It is popular in British industry due to its realization. It is, on the other hand, more popular elsewhere, particularly in the United States.

The journal's limited readership might well have jeopardized its success but the editors have wisely decided to only four issues per year and are taking a wide interpretation of their own policy. Issued devoted to self-tuning control. Although this field of study is strictly speaking, a branch of optimal control, it is of great interest to applications workers and combines the use of prediction and modelling to produce control schemes with certain optimality properties.

I have little doubt that, with its wide interpretation, the journal has a wide role to play for both authors and readership.

D. H. Owens

D. H. Owens is reader in control engineering at the University of Sheffield.

## Optics and Lasers

Optics and Lasers in Engineering: an International Journal  
edited by J.N. Butters  
Three yearly  
£41.00 per annum  
published by Applied Science Publishers

Although they were once often described as an invention in search of applications, lasers have revolutionized optics. And there are now many applications over a broad field covering biology, medicine, physics, chemistry, surveying, engineering and electronics. Despite its title, this new journal includes coverage of all the industrial applications of optics.

The popular conception of a laser is an emitter of a very powerful beam of light, which may be true in some circumstances. In fact, laser beams do not have to be powerful. The fundamental characteristic of a laser beam is its coherence: the fact that its oscillations are in step both across its breadth and also in time. Even if the laser is not powerful its coherence allows the beam to be focused so that it is very intense, unlike light from, say, a lamp bulb which can only be focused to a limited degree. Many applications rely on this possibility of focus: the videodisc player and analogous optical data storage systems for computers; laser machining, cutting, welding and surface treatment; printing; and surgery.

The regularity in time of the laser beam means that it has a well-defined frequency and therefore wavelength. This allows the laser to be used to measure distances to high accuracy, usually using an interferometric method. In which one laser beam is arranged to combine and be compared with another. Applications are in surveying or measuring position or deformation to high accuracy. One important type of interferometry is holography, in which one laser beam, the reference beam, is used to measure and record the properties of another. Holography may be used to measure three-dimensional pictures, to produce optical elements such as lenses or mirrors, or to measure deformation of a body under an applied load.

Although most engineering applications of lasers fall into one of these categories, there are many others represented in this journal which rely on the unique properties of laser beams. It is this unique property that it can be made to interact with matter in a very specific way that makes it so valuable.

applications where optical methods can be used to measure a wide range of properties, from velocity to electric current or voltage. Perhaps the most important application of optics nowadays is in optical communications. However, although this topic does not seem to be included in the journal, it is adequately covered by other specialist journals.

This journal is clearly successful in forming a link between academic work and applications in engineering. Although its coverage is more limited than in journals such as *Applied Optics*, and there are obvious overlaps with *Optical and Quantum Electronics* and *Optics and Laser Technology*, its papers are of a high academic standard.

C. J. R. Sheppard

C. J. R. Sheppard is university lecturer in engineering science and fellow of Pembroke College, Oxford.

## Chemical niche

International Reviews in Physical Chemistry  
edited by A. D. Buckingham, J. M. Thomas and B. A. Thrush  
Three yearly  
£27.50 per annum (individuals),  
£55.00 per annum (institutions)  
published by ButterworthsJournal of Computational Chemistry  
edited by N. L. Allinger and P. von R. Schleyer  
Quarterly  
£101.00 per annum (surface mail),  
£157.00 per annum (air mail)  
published by Wiley (New York).The first question to be asked in assessing new journals is whether they have a distinct role to play in the present, already crowded, scientific literature. To satisfy this demanding test a journal must identify a distinctive subject matter, readership or approach. In these respects *International Reviews in Physical Chemistry* provides at least partially in that it provides a new approach and style which could lead to a useful contribution to modern physical chemistry.

No attempt is made to provide a comprehensive survey of recent advances in the subject. Rather, editors have chosen to highlight certain topics of particular contemporary

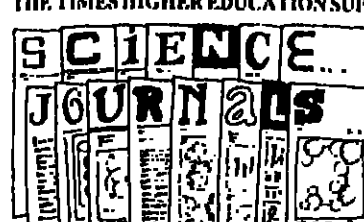
interest, and have allowed authors to present comprehensive and detailed surveys. This may lead to authors concentrating on their own work, as well done, however, this can be of value. It is often useful to allow research workers in a field to review their own recent work, and a valuable supplement to the existing literature. Recent topics reviewed include high sensitivity nuclear quadrupole resonance, the pressure tuning of electronic energy levels, and the molecular fine structure in dynamic photophysical processes. The articles are well written and presented. In addition the journal contains a useful set of book reviews. It can certainly be recommended to all wishing to keep abreast of recent developments in physical chemistry, especially in the areas of theoretical chemistry and chemical physics.

Journal of Computational Chemistry, however, is (according to the criteria I have outlined) less successful. Although use of computational techniques in chemistry is a rapidly growing area - and one which, as the editors have clearly realized, covers all the niches of the subject - it is difficult to see that there is the need for a new journal for such work. Good papers in the field of computational chemistry can be found several satisfactory existing journals. It is also difficult to see how the journal has identified a readership. It is not accessed by the existing journals. Indeed, there is a danger in the type of new journal in that it may attract a certain number of high quality papers which may not receive the attention they deserve unless the journal is notably successful in competing against the already severe competition.

Despite these difficulties, the journal does seem to have succeeded in attracting good papers. The editorial board is very strong, and the distinction of subject matter is also good. There is the inevitable high proportion of quantum chemistry, and it is ensured that they attract papers from other areas of computational chemistry, for example, molecular mechanics and molecular dynamics. Thus, those with an interest in theoretical computational chemistry, the journal is well worth reading. Whether there is a need for it, however, is an entirely different matter.

Richard Catlow

Richard Catlow is lecturer in chemistry at University College London.



## Patented life

Biotechnology  
edited by Christopher G. Edwards  
Monthly  
\$78 per annum  
published by Nature Publishing (Macmillan)This new journal from the *Nature* stable will clearly be a useful guide for academics wishing to bridge the difficult gap between pure research and the industrial application of genetic manipulations. The journal should also provide a convenient monthly digest for commercial companies of activities, both academic and industrial, in the "genetic engineering" field. Those interested in the more chemical engineering end of biotechnology, however, will not find much of interest. The journal has several good features: an excellent gossip section on the latest developments in the application of basic research covering topics from plants to plasmids; and informative

## Self and non-self

Immunology Today  
edited by J. R. Ingalls  
Monthly  
£19.50 per annum (individuals),  
£130.00 (institutions)  
published by Elsevier BiomedicalQuite simply, *Immunology Today* is the best thing that has happened in the journal of immunology for decades. I suspect that virtually all immunologists read it, which is probably not true of more than one or two of the numerous other immunological journals, and I am sure most of them wonder, as I do, how they managed before.Like its sister journal, *Trends in Biochemical Sciences*, it looks attractive and up-to-date, with news on the front page and a discreet use of colour where necessary. The main difference from other journals, however, is that almost all its articles are commissioned by the editorial board - a panel of 16 experts spanning the globe. This results in a flow of topical reviews (of fields as well as meetings and even political developments), critical commentaries, controversies, and highly personal hypotheses. The format is flexible enough to include articles of any length from one paragraph to six pages.

Reading an issue of IT gives you the heady feeling of being at an international meeting, and makes "normal" journals with their formalized layout and long publication delays seem almost nineteenth century. Even the book reviews reflect this difference, reviewers evidently feeling free to say what they think in everyday, unstilted language.

Rival editors, however, need not fear unduly, as this new journal is not about to take over the whole field. For one thing, the articles inevitably reflect the editors' concepts of what is exciting and although they are laudably catholic, the same authors do tend to recur. Similarly, certain areas of interest: molecular biology, autoimmunity, natural killer cells, and the major histocompatibility complex.

I do not know how articles are refereed, but I doubt if this will ever be the place to publish definitive breakthroughs. What the journal does show is how much room for diversity there is in scientific journalism. We probably need one journal like this in every field - we certainly need it in immunology.

J. H. L. Playfair

J. H. L. Playfair is professor of immunology at the Middlesex Hospital Medical School.

## JOURNALS FROM ACADEMIC PRESS

## Brain and Cognition

Editors H.A. Whitaker  
Brain and Cognition focuses on the non linguistic aspects of neuropsychology, disseminating the latest research findings on motor sensory processes, visual and spatial processes, memory, emotion, and differences, hemispheric differences, praxis, attention, consciousness, and cognitive processes.  
1984: Volume 3 (Quarterly)  
Full Rate: £24.25/\$59.00  
Personal Rate: £23.50/\$38.00

## Developmental Review

Editor: G.J. Whitehurst  
Developmental Review publishes original articles on conceptual issues in psychological development. Papers present summaries of programmatic and theoretical research, empirical findings that are provocative and of particular relevance for developmental theory, and integrated collections of papers on a single topic.  
1984: Volume 4 (Quarterly)  
Full Rate: £29.25/\$65.00  
Personal Rate: £21.50/\$39.00

## Cretaceous Research

Editors-in-Chief M.B. Hart and E.G. Kauffman  
Cretaceous Research publishes high-quality contributions from such varied disciplines as paleontology, stratigraphy, geophysics, geology, deep-sea research, petroleum geology, geochemistry, sedimentology and plate tectonics.  
1984: Volume 5 (Quarterly)  
Full Rate: £48.00/\$125.00

## IMA Journal of Numerical Analysis

Editors K.W. Morton and M.J.D. Powell  
This journal presents a balanced coverage of both the practical and theoretical aspects of the subject. Papers providing a thorough and detailed analysis of a class of methods will appear together with articles on new methods that have been developed with the promise of wide applicability.  
1984: Volume 4 (Quarterly)  
Full Rate: £24.70/\$72.70

## Journal of Algorithms

Editors D.E. Knuth and H.S. Wilf  
This journal publishes papers in the area of complexity theory, algorithms on graphs, combinatorial structures and objects, discrete optimization, geometric algorithms, arithmetic algorithms, and methods of algorithmic analysis.  
1984: Volume 5 (Quarterly)  
Full Rate: £78.50/\$110.00  
Personal Rate: £42.50/\$69.00

## Advances in Applied Mathematics

Editor: Gian-Carlo Rota  
This interdisciplinary journal features articles on: continuum mechanics, mathematical physics, statistics, the newer fields of mathematical biology, mathematical economics, communication theory and computer science.  
1984: Volume 6 (Quarterly)  
Full Rate: £65.76/\$92.00  
Personal Rate: £35.25/\$59.00

## ADVANCE ANNOUNCEMENT Food Microbiology

Editor: B.H. Klevor  
Food Microbiology will publish primary research papers, short communications, reviews, reports of meetings, book reviews and reports dealing with all microbiological aspects of the food and beverage industries. The subjects covered will include food quality, food safety and the biotechnology of food and beverage processing.  
1984: Volume 1 (Quarterly)  
Full Rate: £42.00/\$68.00

## NEW JOURNALS

## Journal of Cereal Science

Editor: T. Galliard  
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## Global problems

The *Environmentalists* is the international journal for all professionals concerned with education, training and communication in every area of environmental protection edited by David Hughes-Evans and J. H. Ahrlich  
Quarterly  
\$Fr 165 per annum  
published by Elsevier Sequoia  
Environmental Education and Information  
edited by Graham Ashworth  
Quarterly  
£34.00 per annum  
published by Taylor & Francis

Environmental problems have always been with us, but their urgency has only been appreciated by a large number of people in the past 15 to 20 years. In the wake of this new perception of our environment have come demands that environmental education be developed in schools, colleges, universities and among the public at large. Organizations have been created such as the International Union for the

## Pollution monitoring

Environmental Monitoring and Assessment: an International Journal  
edited by G. B. Wiersma and A. T. Sora  
Quarterly  
Dfl 143.00 per annum  
published by D. Reidel

The environmental revolution has contributed to the proliferation of journals during the past decade. A new journal in this area, particularly one published as a commercial venture and not by a learned society, must be carefully examined. What new features does it have to offer?

*Environmental Monitoring and Assessment* is the rather ponderous title of a journal now in its third year. It aims to report progress in pollution monitoring, emphasizing scientific principles in the design of monitoring systems for local, regional and worldwide scale. It is also concerned with the implementation of the monitoring systems and the use of the ensuing results to assess pollution risks.

Set against these objectives, volume two (1982) is very good in parts, astonishingly pedestrian in others. This diversity arises from the sources of the material. Parts one and two (together) arise from papers presented at an

Conservation of Nature and Natural Resources (IUCN), conferences have been organized, and projects such as Man and the Biosphere (MAB) have been sponsored.

These two new journals are part of this general movement, and both started publication in 1981. Of the two, *The Environmentalists* is the glossier publication. Designed for a wide readership (the professional, policy-makers, employers, researchers, concerned individuals), as is evident by the range and style of articles published, it is liberally sprinkled with photographs which illustrate its articles, or which focus on people who are prominent in the environmental movement.

*Environmental Education and Information* is perhaps more obviously academic in its format and appeal. It contains a section (the major one) of learned articles which range across the whole field of environmental education, with a balance between articles concerned with environmental problems and those concerned with the teaching of environmental issues. A second section contains information about publications, conferences and educational aids, and there is a final section of book reviews. Some of the articles are illustrated with photographs, but to a lesser extent than *The Environmentalists*.

This latter journal is also divided into sections. The first, called "editorial", has a number of messages from the editors, guest editors and "other persons" such as politicians. The second part consists of "papers" (almost none of these are concerned with the educational aspects of the environment); the third contains news and comments and is journalistic in style; the fourth contains "conference

reports" and conference announcements; and the last part book reviews. It is more self-consciously international in its authorship, whereas *Environmental Education and Information* is somewhat more dependent on British authors. Both journals have impressively large advisory boards drawn from experts from a large number of countries; indeed, some appear on both boards.

Clearly, both journals contain articles and information of interest to those attempting to keep abreast of environmental issues. Only *Environmental Education and Information*, however, is specifically concerned with educational issues, although these are addressed mainly to upper secondary and higher education teachers. Teachers of younger children are more likely to find what they want in the *Bulletin of Environmental Education*.

Both journals go beyond what is offered in such smaller scale publications as *Connect* (UNESCO) or *Reed* (Council for Environmental Education). They are therefore likely to inform and stimulate those who have a serious interest in environmental education—be these geographers, biologists, chemists, architects or any other specialist. None of the articles seem too technical in their presentation to make them inaccessible to any but specialists in that field. Non-specialist readers should therefore be able to understand what is being said and see the relevance of the points being made to his or her work.

### Norman Graves

Norman Graves is professor of geography education at the University of London Institute of Education.

powerful tools for testing cost-effective control strategies.

Another theme is pollution assessment—the quantification of exposure response through determination of the relationship between source and exposure, followed by the relationship between exposure and effect, on humans in particular and the environment in general. In this respect, parts one and two are worth reading.

Part four fails to achieve the aims of its grandiose title, for it is parochial in outlook. Its analysis is bland, and intentions rather than results predominate.

Although this journal has some good points, its uneven quality must surely be a cause for concern.

### Malcolm Fox

Malcolm Fox lectures on pollution control at Leicester Polytechnic.

*Zeolites: the international journal of molecular sieves* (quarterly, £80.00 per annum), which was first published by Butterworth Scientific in 1981, continues to cover all aspects of this industrially important group of synthetic, aluminosilicate compounds (in-soluble resins, for example) now manufactured for their ion-exchange properties. Because of their open crystal structure, they can be used as "molecular sieves".

## Inorganic merger

*Polyhedron: the international journal for inorganic and organometallic chemistry*  
edited by Geoffrey Wilkinson  
Monthly  
\$500.00 per annum  
published by Pergamon Press

To those who have followed Robert Maxwell's attempts to rationalize professional soccer in the Oxford area by creating Thames Valley Royals from an amalgamation of Oxford United and Reading Town football clubs, the appearance of *Polyhedron* represents Pergamon's attempt to create a new and prestigious journal from the *Journal of Inorganic and Nuclear Chemistry* and the *Journal of Inorganic Chemistry Letters*.

As an influential journal in the 1950s, the former published, for example, important papers on the effect by Chatt and Orgel and Oxidation organometallic molecules by Pipes and Wilkinson. And the latter published short communications; although a never became a premier scientific journal, it provided a useful outlet for papers which did not meet the now exacting standards of *Chemical Communications*. During the 1970s the number of papers published in these journals from world class inorganic chemistry laboratories decreased, its refereeing policy slackened and its journals declined. Clearly the time had come for a new direction.

First published in 1982, the new journal was named *Polyhedron* in order to emphasize the fact that it comes from the same stable as *Inorganic Chemistry*, the successful organic chemistry journal founded by Sir Robert Robinson and R. B. Woodward. Professor Sir Geoffrey Wilkinson—the Nobel prize winning inorganic chemist—was appointed editor-in-chief and a new all-British editorial board was recruited.

The wide variety of papers published in recent issues of the journal reflects accurately the broad nature of modern inorganic chemistry. In addition to those papers reporting results in current growth areas such as cluster chemistry, organometallic chemistry and the coordination chemistry of macrocyclic ligands, there are also papers describing developments in the popular areas of transition metal and organometallic chemistry. For example, recent issues of the journal include papers dealing with sulphur-sulphur bonding compounds, and the organometallic chemistry of phosphorus and arsenic.

Although much of the journal is devoted to the description of new compounds, there are in addition papers dealing with the application of spectroscopic and physical methods to inorganic compounds. In particular, papers describing the measurement of the stability constants of complexes, kinetic studies on the mechanism of inorganic reactions and the study of specific compounds by infrared, Raman and photoelectron spectral techniques.

Academic standard has certainly been improved, presumably reflecting a firmer refereeing policy by the executive editor Professor D. C. Bradley, and the journal is more interesting scientifically in its new form. In particular, this has resulted from publications from members of the editorial board, but in large measure it represents a return to the mainstream of inorganic chemistry. The journal has not lost its international flavour, but the number of papers published from major laboratories in the United States was disappointing, perhaps reflecting the pre-eminent position of *Inorganic Chemistry* journals such as *Inorganic Chemistry* and the *Journal of the American Chemical Society*.

Although *Polyhedron's* team has shown improvement and is pushing hard for promotion, it still has some way to go before reaching the first division.

### D. M. P. Mingos

D. M. P. Mingos is university lecturer in inorganic chemistry and a fellow of Keele College, Oxford.



## Mobile cells

*Journal of Muscle Research and Cell Motility*  
edited by R. T. Tregear, C. C. Ashley and A. G. Woods  
Bimonthly  
£74.50 per annum  
published by Chapman & Hall

For many years the emphasis of research in the general area of motility was essentially limited to the study of muscle. Muscles are often beautifully organized and extensive, especially in striated muscles in vertebrates and insects, and this allowed the rapid application of the new structural and physiological techniques developed in the 1950s and 1960s. Similarly, biochemists could take advantage of the large quantities of protein available for analysis. However, based on the resulting background knowledge about muscle structure and biochemistry, and aided by the advent of new or improved techniques, the past decade has seen the emergence of the general area of cell motility (that is, motility in non-muscle cells) as a flourishing, rapidly growing and almost separate discipline.

In fact, many forms of cell motility involve the interaction of the same major proteins, actin and myosin, as muscular contraction, and in both cases it is the relative sliding of actin filaments and myosin aggregates, driven by the immediate energy source adenosine triphosphate (ATP), which causes movement. In addition, some aspects of the control of activity involve similar regulatory proteins such as tropomyosin and the tropomyosin-like calcium-binding proteins. Even in

John Squire  
John Squire is reader in biophysics at Imperial College, London.

## Pollution episodes

*Environmental Pollution Series B: Chemical and Physical*  
edited by Kenneth Mellanby  
Four issues per volume, two volumes per year  
£95.00 per two volumes  
published by Applied Science Publishers  
*Chemistry in Ecology*  
edited by E. J. Perkins  
Four issues per volume block  
£161.00 per volume  
published by Gordon & Breach

The most challenging area of current environmental research concerns the ecological implications of man-made pollution—a topic of interest to both these international journals, although they approach it in contrasting ways.

Strictly speaking, *Environmental Pollution* is not a new journal, as it first appeared in 1970, but after a decade of publication the pressure of papers on biological matters warranted division into series A (ecological and biological) and series B (chemical and physical), the latter now having an established reputation for high-quality, refereed research papers on a wide range of atmospheric, aquatic and terrestrial pollution problems, which need not be chemical in nature, as physical aspects such as noise pollution, thermal pollution and plastics disposal are also considered important. Work of a biological nature is included in series A, although discussions of the ecological impact of the different forms of pollutants are preferred for series B.

The journal also encourages papers with an emphasis either on the distribution of pollutants or new techniques for their study and measurement. In many respects, (as aims and contents are very similar to *Water, Air, Soil Pollution*, which also contains many papers on pollutant distributions. Apart from major pollution episodes, this type of study is of limited value, as it reflects purely local conditions, which are of little interest to the international scientific community.

those aspects of cell motility which centre on microtubules rather than actin and myosin, it seems that motion is caused by an ATP-driven "sliding microtubule" mechanism which may in some ways be analogous to the "sliding filament" mechanism in muscle.

An attraction of this new journal is that it recognizes the enormous overlap of these two aspects of motility and it provides the possibility of further cross-fertilization. In the three years since its inception in March 1980, the journal has contained a mix of substantial original papers spread across both disciplines, although to date, despite the good intentions of the editors, it has been rather heavily weighted towards muscle. To increase the cell motility content of the journal, the two original editors recently co-edited *Dr Alan Woods of the MRC Laboratory of Molecular Biology, Cambridge*, a one-time muscle specialist, now switched to cell motility, and with his support they are actively seeking new contributions on cell motility. Nevertheless, there seems to be no dearth of papers on muscle, and 1983 sees an increase from four to six issues per year.

Most papers are accessible to a broad readership and the presentation in all subject areas is good. In addition to the original papers in the journal (and one must admit that, as in most publications, there are occasional exceptions to the usually good scientific standard) there have also been several invited review articles which have generally been timely, well-written and interesting. Also included have been reports of meetings and workshops on muscle and motility, occasional editorial comments and very occasional book reviews (once again of mixed quality). The journal also reproduces in full each year the contributed abstracts of the annual "European Congress of Muscle and Motility"—a very useful service.

This journal has great potential and has made a good start.

### John Squire

John Squire is reader in biophysics at Imperial College, London.

Many current research programmes are focused on the evaluation of the mechanisms and rates of pollutant transfer, inferred from measurements on natural systems. The quantitative information gleaned from these studies is crucial to the development of predictive ecosystem models and there are too few papers in this journal reflecting the present trends.

*Chemistry in Ecology*, first published in 1982, entered the academic arena with some bright, new ideas. Its aims are to publish refereed research papers of work carried out by both chemists and ecologists and to foster interdisciplinary study, so desperately needed in the solution of complex environmental problems.

This is especially true in the study of natural waters, where chemists and ecologists have tended to work in isolation. For many chemists the ecosystem is still something of a "black box", even in a well researched area like nutrient chemistry. The emphasis placed by the journal is less on pollutant distributions and more on fundamental studies to include theoretical treatments of the influence of chemical state on biological activity.

As these aims have a lot in common with highly regarded journals such as the *Journal of Ecology* (mainly plant ecology) and the *Journal of Experimental Marine Biology and Ecology*, it may prove difficult to persuade researchers to change their established publishing patterns. Indeed, this was evident in the first volume of *Chemistry in Ecology* which contained many papers with a strong marine flavour, but it made clear that a wider view of ecological problems is preferable. One important advantage of this journal is its rapid publication time, as authors can submit their manuscripts in a camera-ready form.

This journal is potentially very useful, and provided the papers are of a high standard with a distinctive character, it should find its way into many libraries and laboratories.

### Geoffrey Millward

Geoffrey Millward is senior lecturer in oceanography at Plymouth Polytechnic.

## Laser spectrum

*Laser Chemistry: an International Journal*  
edited by R. J. Vetter et al  
Bimonthly  
£97 per annum  
published by Harwood Academic (Gordon & Breach)

When I graduated in 1955 the first laser was still five years away, the first tunable laser, the first ultraviolet and infrared lasers still further away, and even the notion of lasers reaching towards the x-ray region was thought impossible until well into the 1960s.

Now lasers are ubiquitous, covering a broad swathe of the electromagnetic

spectrum, penetrating almost every aspect of scientific inquiry and still generating excitement and potential for new applications and development. Their impact on the fields of chemistry, chemical physics, spectroscopy, atomic and molecular physics and increasingly, in biology, has often been revolutionary. "Laser-free spectroscopy" is a rarity at gatherings of research spectroscopists, while conferences on the dynamics of chemical reactions, and on photochemistry and photobiology, have been transformed by the laser revolution.

In such circumstances, the current research journals may respond by introducing laser-related sections in their contents or they may become almost wholly devoted to laser development and applications especially where the urgency and competition is felt most acutely. At their best these convey the handy excitement of novel techniques for which the researcher craves; at

their worst, they can develop into "Journals of Breathless Communications" as the excitement degenerates into an unthinking hysteria. An alternative and more mature response is to introduce new specialist journals that provide an ordered outlet for the flood of new research, and this is the aim of the editor of *Laser Chemistry*, a new journal "intended to bridge the gap between physics and chemistry laser-related research".

With the ferment of activity in laser research and the quality of its international board, this new journal should rapidly gain momentum and respectability. It ought not to lack potential authors once established.

### J. P. Simons

J. P. Simons is professor of physical chemistry at the University of Nottingham.

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## JOURNALS FROM CHAPMAN AND HALL/E & F N SPON

### Journal of Muscle Research and Cell Motility

Editor: R. T. Tregear, Cambridge  
G. C. Ashley and A. G. Woods, Cambridge  
The *Journal of Muscle Research and Cell Motility* has as its main aim the publication of original research papers on any aspect of muscle, contractile mechanisms and cell motility. Last year Dr Alan Woods was appointed as an Editor with special responsibility for cell motility. The frequency of publication has been increased to six times a year. In 1984 the Journal will publish a greater number of reviews, abstracts of the European Congress on Muscle and Motility, as well as reports of relevant meetings and book reviews.  
Subject Areas: Cell Biology, Physiology, Biochemistry, Biophysics, Cell Motility, Cytoskeleton  
ISSN 0142-4319

### The Histochemical Journal

Editor: P. J. Howard, Dundee  
The *Histochemical Journal* is a primary journal publishing international papers, reviews and rapid communications in histochemistry and cytochemistry. The growing importance of immunocytochemistry is being recognized by the formation of a Specialist Advisory Editorial Board with the responsibility for this area.  
Subject Areas: Histochemistry, Biochemistry, Pathology and Immunocytochemistry  
Published monthly  
ISSN 0018-2214

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### Journal of Neurocytology

A Journal of Cellular Neurobiology  
Editors: A. R. Lieberman, Aarhus, Denmark  
E. G. Gray, London  
The policy of this journal is to publish high-quality research papers dealing with the structural, biochemical, physiological and pharmacological studies of neurons, receptors, synapses, neuroeffector junctions, glia, and other elements of the peripheral and central nervous systems. Studies of both vertebrate and invertebrate nervous systems under normal, experimental and pathological conditions are included.  
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ISSN 0300-4664

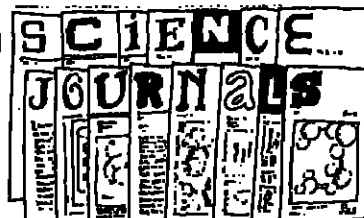
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#### The Journal of Sports Sciences

Editor: T. Reilly, Liverpool  
The main aim of the *Journal of Sports Sciences* is to provide a contact point between the separate disciplines in sports sciences. It includes contributions from the human sciences where scientific methodologies are applied to sport and performance. These embrace: anatomy, anthropometry, behavioural sciences, physiology and psychology. The focal point is exercise and sport or competitive physical activity. Papers could cover technologies such as design of playing equipment and sports facilities as well as applied research in training, team selection, performance prediction or motivation and stress reduction.  
First published in 1983  
ISSN 0264-0414

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## Individual fruits

Personality and Individual Differences  
edited by H. J. Eysenck  
Bimonthly  
\$75 per annum  
published by Pergamon Press

Individuals are not identical. Some experimental psychologists in search of simple empirical results are often deflected by this self-evident fact; whereas correlational psychologists who investigate differences in cognition, personality, or social behaviour among people readily take up the challenge to discern order in their complicated sets of observations. However, they all too often fail to make use of controlled experiment, and the hypothetico-deductive method in the explanation of their results.

*Personality and Individual Differences*, a journal founded in 1980 by its influential editor-in-chief, provides a home for reports of research into the structure and development of personality, and the causation of individual differences. Thus, it seeks to publish papers which combine both the experimental and correlational approaches to the study of individuals. Preference is given to work based on good theoretical foundations, and there is a special interest in genetic and environmental factors and their interaction as causes of psychological differences.

Each issue of the journal contains about ten main articles, addressing topics such as neuroticism, extraversion and openness to experience; classical conditioning and socialization; multivariate comparisons of the intellectual performance of black and white children; and personality and the perception of television violence.

A second section, "notes and shorter communications", then presents empirical findings of moment and potential theoretical importance. Discoveries range from the insulting: France has the lowest mean IQ in comparison with 20 other European countries, through the startling: psychoticism (like neuroticism) may impair marital satisfaction, to the wagging: a relatively short forefinger is indicative of assertiveness in women, though the relationship is small in magnitude.

Most issues include a useful "special review", often written by Professor



Eysenck. A book reviews section is carried in all issues and provides helpful criticism of recent volumes including those not written in the English language (not all American). An indication of the considerable enthusiasm which the journal has stimulated in the psychological community is that it originally appeared quarterly. It should certainly be read by any psychologist who claims to have a serious interest in the scientific examination of individual differences.

R. E. Rawles

R. E. Rawles is lecturer and departmental tutor in psychology at University College London.

## Cognitive disability

Brain and Cognition  
edited by Harry A. Whitlaker  
Quarterly  
\$54.00 per annum  
published by Academic Press

Just as the rapid growth of interest in cognitive psychology in the 1960-70s resulted in the establishment of a handful of well-used journals with cognition as their focus, current interest in cognitive disability is being matched by outlet activity. A number of prestigious journals are already published in the area of what might be called "cognitive neuropsychology", and they do not always contain a full complement of first-rate articles. If this is due to the absence of sufficient research of the appropriate quality, then the new journals will run a risk of early dismissal as editors succumb to pressure to fill their pages.

The growth of interest is, as the

editorial in the first issue of *Brain and Cognition* admits, only partly due to a wide theoretical interest in the failure of cognitive function. Technical advances in imaging brain and brain processes have resulted in methodological sophistication, and the neurological substrate of cognition can now be investigated. The editorial traces the development of *Brain and Cognition* as an offspring of the well-developed *Brain and Language* (volume one, 1974), in response to a need for an outlet for non-linguistic research. Research to be covered in *Brain and Cognition* will include human motor and sensory functions, emotion, visual-spatial processing, attention, and memory, as correlated with brain structure and function. This research will be conducted with normal or brain-damaged populations, will include studies of cerebral laterality, sex and age differences, and will take the form of experimental studies, case histories, and theoretical reviews. Occasional special issues are promised, to deal with single topics within this domain.

The first volume (1982) looks encouraging, and although approximately half the papers are concerned with cerebral laterality and related issues such as handedness, it does not look like becoming just another journal of hemispheric differences. It contains interesting and useful articles on a wide range of problems including synesthesia, neuropsychological correlates of Parkinson's, Huntington's, and Alzheimer's diseases, prosopagnosia, relationships between cerebral blood flow and cognitive activity, and more on the effects of lateral eye fixations upon verbal and spatial processing.

Geoffrey Underwood

Geoffrey Underwood is lecturer in psychology at the University of Nottingham.

## Child cognition

Developmental Review: perspectives in behavior and cognition  
edited by Grever J. Whitehurst  
Quarterly  
\$51.50 per annum  
published by Academic Press

*Developmental Review* is a new journal in the field of child development. It is published by British Psychological Society, St Andrews House, 48 Princess Road East, Leicester.

Like most self-respecting scientific journals, *Developmental Review* lays claim to international status. However, in common with most of the major journals in this field it is in fact American, and its claim to be international is more than a little undermined by the fact that its editor, some 90 per cent of its editorial board and virtually all its acknowledged referees are American. So too, in the issues inspected, are about 85 per cent of its authors.

Both the title and the inaugural editorial statement seem to suggest that the *British Journal of Developmental Psychology* had more particular ambitions. Professor Bryant finds just

ification for the new journal in the fact that while British developmental psychologists have in recent years made notable contributions to their field, no one journal has been devoted to publishing their work. It might seem from this that the new journal "fills a gap", that it does so by being exclusively British. In fact, however, the journal invites papers from authors throughout the world and in the two issues to date only about 60 per cent of the papers are British. So although neither of these journals are fully international, the British journal, its name notwithstanding, may have the stronger claim to that epithet.

Neither journal title mentions childhood, but virtually all of the material in both relates to child development, rather than to development in middle or old age. *British Journal of Developmental Psychology* is open to contributions of all types, theoretical or empirical. However, all papers in the first two issues are research reports, and in the second issue all are experimental in approach. *Developmental Review*, on the other hand, specifically invites articles which bear on conceptual issues in psychological development. Theoretical papers, reviews, and analyses of method, and reporting empirical findings are accepted only if they are of particular relevance to developmental theory, in practice, perhaps, a quarter of the papers report empirical studies, usually in the context of an extended discussion of methodological issues.

The format of *British Journal of Developmental Psychology* is conventional, and the length of papers fairly tightly circumscribed. Their quality is high, and academic developmental psychologists will find many of them readable and interesting. Average publication delay seems to be just under a year. The three issues of *Developmental Review* examined show a remarkable diversity of format. Volume 2(3) is given over to papers on a single theme - mathematical models of development. Volume 2(4) comprises a small number of relatively discursive, mainly theoretical articles. Volume 3(1) comprises short papers, comments by others, and replies by the original authors. Although the resulting heterogeneity of form is not without interest, many of the theoretical and methodological papers may seem somewhat esoteric, perhaps the more so to a British than to an American readership.

Whereas *Developmental Review* seems likely to remain a marginal journal in this country at least, *British Journal of Developmental Psychology* has every prospect of becoming one of the premier publication channels for British developmental psychologists. If some of its longer established American rivals have gone, then it may also make a considerable mark internationally.

Paul Light

Paul Light is senior lecturer in psychology at the University of Southampton.

## Classroom behaviour

Educational Psychology: an international journal of experimental educational psychology  
edited by Richard Riding and Kevin Wheldall  
Quarterly

\$22.00 per annum (individuals), \$44.00 per annum (institutions)  
published by Carfax Publishing, P.O. Box 25, Abingdon, Oxon OX14 1RN

The main aim of this journal, which was started in 1981, is to provide an international forum for the discussion of research findings in psychology relevant to education, in particular attracting high-quality articles reporting experimental and behavioural studies. On the basis of a perusal of four recent issues, it can be said that editors are achieving their purpose admirably. The articles, coming from many different countries, are scholarly, up-to-date and well documented. Although the reports of experiments pay careful attention to statistical detail, they are in general clearly presented and not difficult to follow.

The journal has a wide coverage including papers on such varied topics as the effects of experimental situations in classroom layout; the influence of language strategy in simple arithmetic; learning hierarchies; and consequences of teacher praise and criticism. (Also, it usually has a section of book reviews.) Its scope does not differ greatly from, say, the *British Journal of Educational Psychology*, although a number of contributions reflect the strong interest of the editors in applied behaviour analysis in education (or, as they call it, "behavioural pedagogy") and in encouraging a less restricted view of behaviour modification than has often been the case hitherto. Further, although the journal aims to concentrate primarily on "normal" children, ordinary educational settings, it gives quite a lot of space to the application of systematic behavioural methods to pupils presenting learning or behavioural difficulties in the classroom.

The whole of one double issue (volume two, numbers three and four, 1982) is devoted to articles and discussion papers on behavioural pedagogy. It is the editors' intention to continue to devote one of the issues each year to a specific topic. This seems a good idea, allowing greater depth of treatment and more opportunities to stimulate discussion. The editors are anxious that they should receive some feedback and that there should be a real dialogue between teachers and readers; they say that they have not to date succeeded in this aim but they have not yet given up trying.

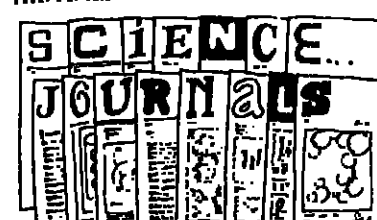
Authors of scholarly papers on topics relating to educational psychology often have to wait a long time before their work is considered for publication. An additional journal in this area is therefore to be welcomed, particularly one which gives high priority to speeding up the publication process, difficult as this is for articles have to be submitted to a primary source for educational researchers, and teachers willing to make an effort to turn to it will find much practical relevance in a number of papers, especially those giving accounts of work with children in special needs.

Maurice Chazan

Maurice Chazan is professor of education at the University College of Swansea.

Elsevier Biomedical publish two

cliff notes in the behavioural sciences. *Behavioural Brain Research*, published monthly at £80 per annum, is devoted to interdisciplinary studies of brain mechanisms underlying behaviour. *Behavioural Analysis Letters*, published bimonthly at £20 per annum, concerns itself with the experimental analysis of the behaviour of animal or human subjects. In fact, this somewhat esoteric journal is devoted predominantly to studies of operant and classical conditioning in animals.



## Molecular biology

Molecular Physiology  
edited by R. Gilles  
Bimonthly  
£140.00 per annum  
published by Elsevier Biomedical  
Cellular and Molecular Neurobiology  
edited by David O. Carpenter  
Quarterly  
\$57.00 per annum  
published by Plenum Press

As a graduate student of comparative physiology in the late 1950s, I found little difficulty in keeping abreast of current research publications in my field, although I suffered some criticism from my senior colleagues for my supposed narrow perspective of biology. The term "molecular" had yet to become that overused and oft-abused adjective which characterizes much of the present scramble for research funds, although "neurobiology" was already an endearment of my trendier new world equivalents.

I paint this cosy picture not to savour the past, for I dislike nostalgia, but to contrast life as a comparative neurobiologist (né physiologist) as it was then and is now. The expansion of biological research, and in particular

neurobiology, during the past two decades has been characterized by an upsurge in demand for publishing outlets, the response to which has been the appearance of new journals with titles which reflect the reductionism of an expanding science and the laws of copyright.

*Molecular Physiology* and its sister journal *Cellular and Molecular Neurobiology* are truly representative of these "new wave" publications. Both have been in existence for almost three years, both are attracting and publishing good research papers, and there is no reason to question their important role as research communicators. Their titles may seem flamboyant and perhaps do not accord fully with their contents. I doubt whether they are purchased by many individuals, but their presence on the shelves of libraries in universities and polytechnics gives us an opportunity to sample the richness of animal life which is not always conveyed by some of our maturer, esteemed journals in physiology and biochemistry.

*Molecular Physiology* publishes papers on the molecular mechanisms relevant to general, preclinical and environmental physiology, with a comparative remit. In this respect, its interests are in comparative physiology and biochemistry. Botanists and microbiologists are to be forgiven for thinking that they have an outlet here; their papers are not excluded, but the emphasis is explicitly on molecular mechanisms relevant to animals. Most of its papers could be housed equally happily in a number of other publications such as the *Journal of Experimental Biology*, the *Journal of Physiology* and the *Journal of Comparative Physiology and Biochemistry*. However, the demand for journal

space is so great that in the absence of *Molecular Physiology* I fear that we might never sample the delights of papers such as "blood clotting mechanisms in the spectacled caiman".

*Cellular and Molecular Neurobiology* publishes research articles concerned with the analysis of neuronal and brain function at the cellular and subcellular levels. Its editorial board reads like a "who's who" in neurobiology, which perhaps accounts for the high quality of some of its contents. This journal also publishes review articles by senior scientists, which can lighten the load of the overtaxed academic struggling to keep his head above the rising flood of neurobiological information. The journal emphasizes the cellular as opposed to the organismal (sorry, neuroethological) approach, but I remain less convinced about its molecular credentials. Although there is a host of neurobiological and new publishing papers in this area, some of which also specialize exclusively in neurobiology, *Cellular and Molecular Neurobiology* is quickly establishing itself as a leading journal in its field.

The narrow, well-trod road on which I started my career has expanded to a multi-lane highway with ill-defined borders. I suppose it is time to put on my blinkers and hope for the best. At least, I can be comforted in the knowledge that journals like these two are providing me with a greater choice of reading material. I am rather worried, however, about the titles of the next "wave" of new journals.

P. N. R. Usherwood

P. N. R. Usherwood is professor of zoology at the University of Nottingham.

## Fault lines

Earthquake Prediction Research  
edited by Tsuneji Rikitake  
Quarterly  
£11.70 per annum (individuals), £17.70 per annum (institutions)  
published by D. Reidel  
First Break  
edited by Ian Williamson  
Monthly  
£25.00 per annum  
published by Blackwell Scientific

The number of one-off publications arising from conferences on earthquake prediction has grown enormously in recent years, but because the subject involves contributions from geological sciences, sociology, economics and biology there has been no international periodical that could embrace such diverse interests. As a result, some rather important works on animal behaviour and the socioeconomic effects of earthquakes have been confined to workshop or government reports with small circulation.

*Earthquake Prediction Research* aims to end this situation by providing a medium for all papers on the technology of earthquake prediction and its socioeconomic effects. It will not, however, deal with specific predictions. Case histories, reviews and raw data, especially when not otherwise available in English, are all welcome.

On the evidence of the first three issues, it seems that the editors have not been successful in attracting interdisciplinary articles. Perhaps this is because, although the journal has a distinguished editorial board, it is heavily biased towards geophysics. Of thirty articles that I examined only three, on earthquake forecasting and planning countermeasures, on international experimental sites for earthquake prediction, and on analysis of warning systems, would not have been quite at home in conventional geophysical journals.

The articles are generally research level and are of a high standard. However, there are many typographical errors, suggesting that some stage of production is being rushed. Only two issues for 1982 have actually been published at the time of writing, so perhaps the entire production schedule is out of joint.

*First Break*, launched under the aegis of the European Association of Exploration Geophysicists, aims to fill another gap in the geophysics literature arising from the fact that many

articles are inaccessible to the average reader because they are either too mathematical or too narrowly specialized. Potentially, all branches of geophysics can be included in the journal, but all the issues available to me were overwhelmingly concerned with seismology. The articles were, nevertheless, very clear and well presented with first-class graphics and layout. They should be comprehensible to most geological scientists.

In addition to scientific papers, *First Break* contains news, product information, book reviews, and oozes with the affluence of the oil industry in its full page, full colour advertising. This magazine format makes for visual impact and readability, but if the focus on seismology is maintained then most interest in *First Break* will come from the oil industry. There is little in the magazine at present to interest other geophysicists. In some issues, as much, if not more, space is devoted to advertising as to scientific articles. Most issues contain just two of the

papers submitted by colleagues. The result is a journal that has carved for itself a secure niche and which shows every sign of academic health.

The whole venture has profited from a growing and active field of research and a glance at the contents of recent issues reflects the wide spectrum of contemporary climatology. Each issue contains five or six lengthy papers together with reports of meetings, book reviews and a short section of recent climatic maps. The latter section can be criticized for being too short and containing material which can be found elsewhere, and could either be expanded or deleted.

Quality of papers and their presentation is uniformly high and the journal has already achieved the enviable position of being essential reading for any climatologist seeking to keep abreast of modern developments. It is clear that papers which will become classics and thus widely cited are being attracted to the pages of the journal. The occasional perceptive editorial might be a useful addition to the journal and make it even more a forum for leading and guiding research.

This journal provides an excellent example of how collaboration between a learned society and an academic publisher can produce a successful journal.

Allen Perry

Allen Perry is lecturer in geography at University College, Swansea.

The new bimonthly journal is devoted to the publication of papers and letters on gravitation and relativity. It is intended to serve as a forum for theoretical physicists, mathematicians and cosmologists working in all branches of the theory of space-time and gravitation, including, in particular, the theory and implications of quantum gravity.

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The journal will publish refereed contributions on: Classical theories of gravity. Global properties of space-time. Classical general relativity. Quantum field theory in curved space-time. Early universe studies. Quantum gravity. Supergravity and gauge theories of gravity.

The first volume of *Classical and Quantum Gravity* will be distributed free during 1984 to all customers subscribing to *Journal of Physics A: Mathematical and General*, but is also available separately on subscription; price £95.00, US\$165.00. For further details and specimen copies write to:

The Institute of Physics

Dept CQG 3, Techno House, Redcliffe Way, Bristol BS1 6ND, England







**B. R. Tomlinson**











## Polytechnics continued

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Salary scale: £12,228-£13,572 (Bar) - £15,411, with initial placing depending upon approved previous experience. Financial assistance towards the cost of removal expenses may be payable.

Further particulars and application forms obtainable from the Personnel Officer, Dundee College of Technology, Bell Street, Dundee, DD1 1HG, with whom applications should be lodged by 30th September, 1983.

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Salary: £7,215-£11,568 per annum

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Department of Modern Languages  
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IN SPANISH - Ref  
No 1/55**

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Polytechnic  
Department of Mechanical and Civil Engineering  
**PRINCIPAL  
LECTURER/  
SENIOR LECTURER  
/LECTURER II**

Principal: £12,228-£13,572 (Bar) - £15,411, with initial placing depending upon approved previous experience. Financial assistance towards the cost of removal expenses may be payable.

Further particulars and application forms obtainable from the Personnel Officer, North Staffordshire Polytechnic, Leazes Road, Newcastle upon Tyne, NE1 4ST, Tel: 0191 275 1111, Ext. 275 1111 and should be returned to that office not later than 30th September, 1983.

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Polytechnic  
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Assistant:  
Batteries

A three-year Science Education Research Council-funded post, to carry out research into the behaviour of manganese dioxide and its application in batteries. The successful applicant will be expected to register for a PhD degree under the supervision of Dr Frank Tye, who is a member of the project team.

Candidates should have an honours degree in chemistry or physics, or a related discipline, and have experience in the use of X-ray diffraction, or other techniques for the study of solid state materials. A knowledge of electrochemical techniques would be an advantage.

New powder X-ray diffraction, atomic absorption and polarographic equipment is available in the newly created Department of Chemistry, Middlesex Polytechnic, Hendon, London NW4 3BN. Closing date: 26 September, 1983.

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Bristol Polytechnic  
Department of Modern Languages  
**LECTURER II/  
SENIOR LECTURER  
IN SPANISH - Ref  
No 1/55**

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Dr T.H. Gourlay,  
School of Economic and Social Studies,  
University of East Anglia,  
Norwich NR4 7TJ.

Closing date for applications: 12 October 1983.

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**JUNIOR RESEARCH  
ASSOCIATE**

Applications are invited from graduates in Agriculture, Horticulture or Forestry for a Junior Research Associate position in the Department of Agriculture, Horticulture and Forestry. The successful candidate will be expected to carry out research into the physical and social aspects of the development of the city of Wolverhampton and the City of Birmingham.

Polytechnic of  
Central London  
**U.K. Competition  
Policy  
RESEARCH  
ASSISTANT**

A Research Assistant in the Department of Economics and Social Sciences. The successful candidate will be expected to carry out research into the physical and social aspects of the development of the city of Wolverhampton and the City of Birmingham.

University of  
Warwick  
**RESEARCH  
ASSOCIATE**

Applications are invited from graduates in Agriculture, Horticulture or Forestry for a Junior Research Associate position in the Department of Agriculture, Horticulture and Forestry. The successful candidate will be expected to carry out research into the physical and social aspects of the development of the city of Wolverhampton and the City of Birmingham.

Business Services  
**PROFESSIONAL  
TYPING SERVICE**

A team of scientists and technicians are working on a study of the properties of batteries in order to improve their performance. The successful candidate will be required to assist in the design and construction of batteries and to carry out experiments to determine their characteristics. The post is for a full-time position and the successful candidate will be expected to work on a flexible basis, including evenings and weekends. The salary is £6,000 per annum plus a small allowance for travel and subsistence. Applications should be sent to the Energy Centre, The Polytechnic of Wales, Garsington Road, Oxford OX4 2DQ, Tel: 01865 22280, Ext. 2224 and should be returned to that office not later than 30th September, 1983.

## Colleges with Teacher Education

NEWMAN COLLEGE  
BIRMINGHAM**PRINCIPAL**

Applications are invited from suitably qualified practising (Roman) Catholics for the post of Principal of this Catholic college.

The post will become vacant on 1st September, 1984 on the retirement of the present principal.

Salary: Burnham FE Principal, Group 5.

Further particulars may be obtained from:

Clerk to the Governors  
Newman College  
Bartley Green  
Birmingham B32 3NT  
Tel: 021 476 1181, Ext. 51  
Closing date: 17th October, 1983.

WEST MIDLANDS COLLEGE OF HIGHER EDUCATION  
SCHOOL OF TEACHER EDUCATION

Required for January 1984

Course Leader for the Pre-Service BEd (Honours) degree: Principal Lecturer

The successful candidate will lead a team of teachers presently planning a new primary BEd degree. He/she should be a graduate with sound primary school experience, a successful research record, and a knowledge of course planning under CNA.

Two Lecturer II/Senior Lecturer posts in Primary Education

The College is seeking to make two appointments in the primary field, one to specialist in Nursery/Infant Education, and one in Junior School Education. Candidates should have recent and relevant school experience and appropriate research interests. The successful candidate will teach mainly, but not exclusively, on the Pre-Service BEd degree. For each of the above posts a substantial contribution to professional work in one or more of the following areas is sought. The appropriate areas, the Humanities, the Physical Sciences, and the Social Sciences.

Further particulars and application forms are available from the Principal, West Midlands College of Higher Education, Convent Road, Walsall WS1 3BD to whom completed forms should be returned by 30th September, 1983. Candidates should clearly state the post for which they are applying.

## Colleges of Higher Education

ROSE BRUFORD COLLEGE  
OF  
SPEECH & DRAMA  
Wanted for January  
**DEPUTY PRINCIPAL**  
(£15,900 - £16,839)

Apply:  
Chief Administrative Officer,  
Rose Bruford College,  
Lamorbey Park,  
Sidcup, Kent.  
Tel: 01-300 3024.

LECTURER II/SENIOR LECTURER  
IN COMPUTING/MATHEMATICS

Applications are invited from suitably qualified and experienced persons for the above post, which becomes vacant in January 1984.

The person appointed will be expected to make a significant contribution to the teaching of the data processing and systems analysis aspects of the various computing courses offered by the Department. In addition, an ability to teach the mathematics and computing content of the various Degree and Higher Diploma courses served by the Department will be required.

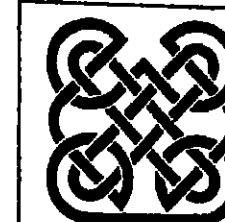
Salary scale: Lecturer II £7,215-£11,568  
Senior Lecturer £10,893-£12,682 (Bar) £13,443

Placing on the salary scale will be according to qualifications and experience.

Application forms and further particulars may be obtained from the Deputy Registrar, to whom completed applications should be returned by 30th September, 1983.

BOLTON INSTITUTE OF HIGHER EDUCATION  
Deane Road, BOLTON BL3 8AB

A team of scientists and technicians are working on a study of the properties of batteries in order to improve their performance. The successful candidate will be required to assist in the design and construction of batteries and to carry out experiments to determine their characteristics. The post is for a full-time position and the successful candidate will be expected to work on a flexible basis, including evenings and weekends. The salary is £6,000 per annum plus a small allowance for travel and subsistence. Applications should be sent to the Energy Centre, The Polytechnic of Wales, Garsington Road, Oxford OX4 2DQ, Tel: 01865 22280, Ext. 2224 and should be returned to that office not later than 30th September, 1983.

West Glamorgan  
Institute of  
Higher Education

Applications are invited for the following posts:

Faculty of Art & Design  
**Lecturer II in  
Technical Illustration**

Applicants should be experienced Technical Illustrators, aware of the needs of industry, and well-qualified academically/professionally. The possession of a higher degree would be an advantage. The successful candidate will be required to teach on the Degree Higher Diploma in Technical Illustration; teaching experience would also be an advantage. (Ref: HE1/1/8/83)

Faculty of Business Administration  
**Senior Lecturer in Business  
Studies (Two Posts)**

Candidates should be suitable graduates in Economics with an ability to contribute to Accounting, Statistics, Marketing and Public Sector Economics courses. The successful applicants will teach on a wide range of courses, and an interest in the development of research within the Faculty would be advantageous. (Ref: HE2/2/8/83)

Faculty of Electronic Engineering  
**Lecturer II in Microelectronics/  
Optoelectronics**

Applicants should be from suitably qualified candidates specialising in Electronics or Microelectronics. Candidates should have relevant postgraduate research or industrial experience. Teaching experience in higher education and a postgraduate degree would be an advantage. (Ref: HE3/3/8/83)

**Lecturer II in  
Data Communications or  
Microcomputer Networks**

Applicants should possess a good honours degree with a specialism in Data Communications or Microcomputer Networks. Candidates should have relevant postgraduate research or industrial experience. Teaching experience in higher education and a postgraduate degree would be an advantage. (Ref: HE4/4/8/83)

**Senior Lecturer in Computer  
Aided Engineering (Electronics)**

Applicants should possess an honours degree or equivalent qualification in Electronic/Electrical Engineering or a related field with a keen interest in, and practical experience of, Computer Aided Engineering (Electronics). Research/development and/or teaching experience would be an advantage. (Ref: HE5/5/8/83)

Faculty of Information Studies  
**Senior Lecturer in Business  
Information (Two posts)**

These posts are in the newly created Faculty and applicants should be suitable graduates with a particular interest in Economic, Accounting, Marketing, Production, Management and Behavioural Sciences. A good honours degree and teaching experience at degree level are essential. A higher degree and research experience would be an advantage. (Ref: HE6/6/8/83)

**Senior Lecturer in Computing**

Applicants should be suitable graduates with expertise/research interests in the following areas: Operating Systems, Graphics, Microprocessors, Database. A good honours degree and teaching experience at degree level are essential. A higher degree and research experience would be an advantage. (Ref: HE7/7/8/83)

Application forms and further details can be obtained by writing to the Principal, West Glamorgan Institute of Higher Education, Townhill Road, Swansea SA2 0UT (see please), Closing date for applications: 30th September, 1983.

Cambridgeshire  
College of Arts and  
Technology  
**LECTURER II/SENIOR LECTURER  
IN ELECTRONICS**

Applications are invited from suitably qualified and experienced persons for the above post, which becomes vacant in January 1984.

The person appointed will be expected to make a significant contribution to the teaching of the data processing and systems analysis aspects of the various computing courses offered by the Department. In addition, an ability to teach the mathematics and computing content of the various Degree and Higher Diploma courses served by the Department will be required.

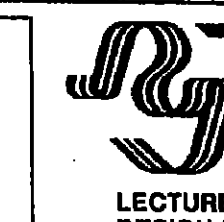
Salary scale: Lecturer II £7,215-£11,568  
Senior Lecturer £10,893-£12,682 (Bar) £13,443

Placing on the salary scale will be according to qualifications and experience.

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BOLTON INSTITUTE OF HIGHER EDUCATION  
Deane Road, BOLTON BL3 8AB

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the College  
of Ripon & York  
St John

Department of Art, Craft and Design  
**LECTURER GRADE II/SENIOR LECTURER IN  
DESIGN AND TECHNOLOGY (£7,215-£13,443)**

Applications are invited from candidates with post-graduate level teaching experience in Art, Design and Technology at the Secondary level of education who have taken a significant role in the development of new curriculum and modern interpretations of the subject.

The person appointed will be expected to contribute to the Teacher Training programmes to degree level and to BA/BSc degree programmes with students reading Design and Technology as their main subject.

A strength in broadly based Metal areas of Design and Technology, with a specific contribution in Silversmithing and Jewellery is required, together with a strong interest in Applied Technology in the subject.

The successful applicant will be expected to initiate development within his or her own aspect of the work and to contribute to the development of Design and Technology within the College.

The appointment is for January 1984.

Further details and form of application available from The Principal, College of Ripon and York St John, Lord Mayor's Walk, York YO3 7EX to whom completed forms should be returned to arrive not later than Monday, 10th October 1983.

Bedford College  
of Higher Education  
**ASSISTANT  
DIRECTOR/  
INSTITUTE  
SECRETARY**

Required as soon as possible

Salary £17,593 per annum

Application forms and details of the post are available from the Principal, Bedford College of Higher Education, 100, Victoria Road, London W14 9JF. The closing date for applications is 30th September 1983.

## Research &amp; Studentships cont

Merton College  
Oxford  
**JUNIOR RESEARCH  
FELLOWSHIPS AND  
SENIOR  
SCHOLARSHIPS  
1984**

The college proposes to offer Junior Research Fellowships and Senior Scholarships to students of the college who are pursuing research in the fields of the Physical Sciences, the Humanities, and the Social Sciences. The successful candidates will be expected to carry out research in their own field and to contribute to the development of the college's research programme.

Details of the awards and the application process are available from the Principal, Merton College, Oxford OX1 2JD. The closing date for applications is 1st October 1983.

Suffolk College of  
Higher and Further  
Education  
**LECTURER  
GRADE 2  
IN LAW**

A Law graduate in required to lecture in all levels of the college's law courses. The successful candidate will be expected to carry out research in their own field and to contribute to the development of the college's research programme.

Details of the awards and the application process are available from the Principal, Suffolk College of Higher and Further Education, Ipswich IP1 3QJ. The closing date for applications is 30th September 1983.

County of Avon  
Bath College of Higher  
Education  
**LECTURER GRADE II**

Applications are invited from suitably qualified and experienced persons for the above post, which becomes vacant in January 1984.

The person appointed will be expected to make a significant contribution to the teaching of the data processing and systems analysis aspects of the various computing courses offered by the Department. In addition, an ability to teach the mathematics and computing content of the various Degree and Higher Diploma courses served by the Department will be required.

Salary scale: Lecturer II £7,215-£11,568  
Senior Lecturer £10,893-£12,682 (Bar) £13,443

Placing on the salary scale will be according to qualifications and experience.

Application forms and further particulars may be obtained from the Deputy Registrar, to whom completed applications should be returned by 30th September, 1983.

A team of scientists and technicians are working on a study of the properties of batteries in order to improve their performance. The successful candidate will be required to assist in the design and construction of batteries and to carry out experiments to determine their characteristics. The post is for a full-time position and the successful candidate will be expected to work on a flexible basis, including evenings and weekends. The salary is £6,000 per annum plus a small allowance for travel and subsistence. Applications should be sent to the Energy Centre, The Polytechnic of Wales, Garsington Road, Oxford OX4 2DQ, Tel: 01865 22280, Ext. 2224 and should be returned to that office not later than 30th September, 1983.



# DEPARTMENT OF EDUCATION AND SCIENCE HM Inspectors of Schools FURTHER AND HIGHER EDUCATION

Applications are invited from men and women, preferably aged between 35 and 45, for appointment as HM Inspectors, HMI provide a service of professional advice at the Department of Education and Science and normally carry a general as well as a specialist assignment. Their work primarily involves inspecting and advising educational institutions, but also includes consulting with local education authorities and contributing to in-service training.

Vacancies exist for inspectors specialising in:

## Construction, Electrical and Electronic Engineering Ref - 7/83

Construction specialists will be involved with all aspects of construction education at craft, technician and professional level. The level of work for engineering specialists will range from operative/craft education and training courses to post-graduate studies.

## Biochemistry, Chemistry, Biology - 8/83

Those appointed will be involved in the inspection of applied chemistry, applied biology and biochemistry courses with a broad range of type and level.

## Adult Education, Social Science and Social Work - 9/83

Adult education specialists would be involved in the inspection of current activities such as mid-career vocational up-dating and inner city education development. Social science and social work specialists would inspect a wide range of courses for those in social service employment, including post-registration nursing and para-medical courses.

Applicants must have had considerable experience and responsibility in their specialist area and have had an active interest in the applications. Appropriate academic qualifications, teaching and industrial/professional experience are essential.

Starting salary is within the range £14,400-£20,800 (up to £1200 higher in London). Promotion prospects.

Application forms (to be returned by 14th October 1983) and further information may be obtained from Mr. E. O. Foster, Department of Education and Science, Room 1617, Elizabeth House, 39 York Road, London SE1 7PH, telephone 01-828 8222, extensions 2786 or 2287. Please quote the appropriate reference.

# PRINCIPAL OF TRAINING Crewe

McCorquodale Machine Systems Limited, a member of the McCorquodale Group, specialising in the design, manufacture and marketing of advanced microprocessor controlled machines for the security printing industry, is seeking someone to take charge of their Training Department.

The person appointed will be responsible for the training standards and administration of the department and, in liaison with the Marketing Manager and Customer Training Manager, organise training programmes for the company, both internally and on site.

Training or lecturing experience would be an advantage, as would be the preparation of course material from syllabus to students' notes and be expected to teach when required. A good degree or equivalent in Electronics is required.

The successful applicant will need to become familiar with the equipment and new technology being developed by the company and establish regular contact with the Design Department Managers to be able to report on current activities to the monthly Executive Meeting and to chair the Design/Service Liaison Committee.

There is an attractive salary and the normal benefits associated with a successful company. Assistance with relocation will be provided where necessary.

Please write or telephone in the first instance with brief details to:

Mrs D. Swift  
McCorquodale Machine Systems Ltd  
First Avenue, Crewe  
Cheshire  
Tel: 0270 54721

## Miscellaneous

A new international journal for all the language professions.

## LANGUAGE MONTHLY

providing topical coverage of what is happening in all activities concerned with language teaching or translation.

Subscription rates: one year £12, six months £7, single issue £1.20, inclusive of postage.

Available from the publishers:  
Preston Limited, 30 Clarendon Street,  
Nottingham NG1 6HC, telephone 0800 411087.

# Microelectronics and Special Education

## INFORMATION TEACHER TRAINING

Two half-time and one full-time post.

Because of the increasing use of microelectronics with children with special educational needs, two additional half-time consultants (one full-time) are required to work with the Microelectronics Education Programme National Co-ordinator.

The Information Consultant will be responsible for ensuring that teachers and educationalists have easy access to information about hardware, software and sources of support. This will be done by producing and updating information sheets, producing a database of software and using all possible means to both build up and disseminate our knowledge about using micros with handicapped children.

The Teacher Training Consultant will initiate short in-service courses on using micros in special education. We anticipate promoting 'blueprints' of various types of short course and working with Local Education Authorities and the Special Education Microelectronics Resource Centres (SEMERCs) to implement these. As the area to be served is England, Wales and Northern Ireland considerable travelling would be involved.

Both consultants will work closely with the four SEMERCs. The contracts will be until March 1988 and much of the work will be done from home (probably) fortnightly visits to CET's offices at 3 Devonshire Street, London W1. Secondment could be arranged.

Salary £5,000 p.a. plus £1,000 expenses for each half-time post.

Closing date for applications (by letter and curriculum vitae - no formal) is Friday 30th September.

For further details contact the Office Manager, Council for Education Technology, 3 Devonshire Street, London W1N 2BA; T16827

## Colleges of Art

## ROYAL NORTHERN COLLEGE OF MUSIC

# 1984 ENTRY

Applications are invited for entry in September 1984.

Applicants should note the new early closing date for receipt of applications.

This is 17th October, 1983.

Auditions for undergraduate entry will be held mainly in the period November to December 1983.

Details and application forms are available from the Secretary for Admissions.

Royal Northern College of Music  
124 Oxford Road, Manchester M13 9RD  
Tel: 061-273 6283

## Cornwall Education Committee

Falmouth School of Art  
Part-time  
TEACHERS

£10.65 per hour.

From September 1984, the Cornwall Education Committee will be offering a new range of part-time teaching posts. This is a two year contract for 10 years. The posts are for teaching in the following areas: Art, Design, Craft, Textiles, Photography, Music, Drama, Dance, Physical Education, Health Education, Citizenship, Languages, Mathematics, Science, Computing, and Social Studies. The successful applicant will be responsible for the teaching of the subject and for the supervision of the students. The posts are for full-time teachers who are currently employed in schools or colleges. The posts are for full-time teachers who are currently employed in schools or colleges.

Application forms, by telephone, may be obtained from the Cornwall Education Committee, Falmouth School of Art, Falmouth, Cornwall TR11 4RA.

# Please mention The THES when replying to advertisements

# STRATHCLYDE REGIONAL COUNCIL Department of Education GLASGOW COLLEGE OF TECHNOLOGY LECTURER 'A' in FINANCE AND ACCOUNTING

Salary Scale: £8,313-£12,228 (Bar) - £13,125

The Department is responsible for SCOTBEC Courses, a CMAA Degree in Accountancy and ACA, ICMA, ICSA, CITPA Professional Studies.

Applications are invited from qualified, experienced accountants who are interested in contributing to teaching and administration within the Department and in academic development.

Areas of current interest within the Department include Auditing, Taxation, Accounting in the Public Sector, Management Accounting, Finance and the development of applications of Information Technology within accounting courses.

Application forms from the Establishments Officer, Glasgow College of Technology, Cowcaddens Road, Glasgow G4 0BA (Tel: 041-332 7090), to whom applications should be returned within 14 days of the appearance of this advertisement.

E. Miller, Director of Education

# Lothian Regional Council NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY HEAD OF DEPARTMENT OF BIOLOGICAL SCIENCES

Salary: £16,144

The Department is well established with a wide range of Higher Certificate, Higher Diploma, Degree, Professional and Postgraduate courses. These courses cover Biological, Medical Laboratory and Water Pollution studies.

The Department has substantial research programmes, including cell biology, toxicology and water pollution, and is developing activities in biotechnology and biotechnology. There is a taught Masters course as well as a number of registered MPhil and PhD research degree students.

Applicants must have appropriate academic qualifications, a substantial record of relevant research and publications, relevant teaching and academic experience in a college, polytechnic or university, and the drive and enthusiasm to lead a large and active department. An interest in developing industrial applications of biology would be an advantage.

Application forms and further particulars from: The Administrative Officer (Personnel), Napier College of Commerce and Technology, Colinton Road, Edinburgh EH10 5DT, Tel: 031 447 7070.

## Overseas



# NATIONAL UNIVERSITY OF SINGAPORE FACULTY OF LAW

Applications are invited for teaching appointments in the Faculty of Law.

Candidates must possess at least a Master's degree in Law or equivalent and relevant teaching/research experience. Preference will be given to candidates who are able to teach in one or more of the following areas:

- Banking Law
- Insurance Law
- Conflict of Law
- Revenue Law
- Constitutional Law
- Property Law
- Contract Law
- Shipping Law
- Criminal Law

Candidates who have either an interdisciplinary approach to the study of law or who are able to conduct courses on basic legal skills such as trial advocacy, appellate advocacy, and negotiation are also invited to apply.

Gross annual emoluments range as follows:

|                                |                      |
|--------------------------------|----------------------|
| Lecturer                       | \$27,610 - \$7,040   |
| Senior Lecturer                | \$35,170 - \$4,600   |
| Associate Professor            | \$37,030 - \$101,970 |
| (Sigs) = \$33.21 approximately |                      |

The commencing salary will depend on the candidate's qualifications, experience and the level of appointment offered. Leave, medical and provident fund benefits are provided. Other benefits include: a settling-in allowance of \$81,000 or \$82,000, subsidised housing at rentals ranging from \$8100 to \$8210 p.m., education allowance in respect of children's education subject to a maximum of \$812,000 p.a., passage assistance and baggage allowance for the transportation of personal effects to Singapore. Staff members may undertake consultation work, subject to the approval of the University, and retain fees up to the equivalent of 60% of annual gross salary in any one year.

Application forms and further information on terms of appointment may be obtained from:

The Director  
Personnel Department  
National University of Singapore  
Kent Ridge  
Singapore 0511  
REPUBLIC OF SINGAPORE

# OVERSEAS CONTINUED



# UNIVERSITY OF CAPE TOWN Senior Lecturer/ Lecturer in Law

Applications are invited for the above post. Appointment will be made according to qualifications and experience of senior lecturer level (R16 567 x 938-124 045 per annum) or lecturer level (R12 867 x 780-10 637 x 858-122 179). A service bonus of nearly one month's salary is payable annually.

In filling this post the University hopes to find a candidate who will teach and research in a new area. Particular interests for development in the faculty are clinical legal education and/or socio-legal studies but other areas will be favourably considered.

Staff benefits include 75% remission of tuition fees for dependants of UCT, generous study leave, a housing subsidy scheme subject to State regulations, pension fund, medical aid and group life insurance.

Applicants should submit a curriculum vitae including areas of interest, publications and present salary, and the names and addresses of three referees whom the University may approach.

Further information should be obtained either from the Secretary, SA Universities Office, Chichester House, 278 High Holborn, London WC2N 7HE, or from the Registrar (Attention: Appointments Office), Department E/286, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, by whom applications should be received not later than 31 October 1983.

The University's policy is not to discriminate on the grounds of sex, race or religion.

Further information on the implementation of this policy is obtainable on request.



# UNIVERSITY OF CAPE TOWN Chair in Sociology

Applications are invited for the Chair of Sociology. Applicants should have demonstrated scholarship of high calibre and will be required to teach, supervise candidates for high degrees and undertake research. Suitably qualified individuals with teaching and research interests in any branch of sociology including industrial sociology are invited to apply.

Appointment, depending on qualifications and experience, will be made on the salary scale R23 108-24 045 x 1 035-R30 265 per annum. In addition a service bonus of nearly one month's salary is payable annually. Staff benefits include 75% remission of tuition fees for dependants of UCT, generous study leave, a housing subsidy scheme subject to State regulations, pension fund, medical aid and group life insurance.

Applicants for fixed term as well as permanent appointments will be considered.

Applicants should submit a curriculum vitae, stating present salary, research interests and publications, the date duty could be assumed, and the names and addresses of three referees.

Further information should be obtained either from the Secretary, SA Universities Office, Chichester House, 278 High Holborn, London WC2N 7HE, or from the Registrar (Attention: Appointments Office), Department E/286, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, by whom applications must be received not later than 31 October 1983.

The University's policy is not to discriminate on the grounds of sex, race or religion.

Further information on the implementation of this policy is obtainable on request.



# UNIVERSITY COLLEGE OF ARTS & SCIENCE Nicola & Linas Tel: 66338 Cyprus

This British University College is the leading educational institution of Higher Learning in Eastern Mediterranean.

1. Requires Experienced Reader/Professors in:

- Accountancy
- Arabic
- English & French Literature
- Economics & Social Sciences
- Mathematics
- Philosophy
- Physics
- Psychology
- Religion
- Science
- Statistics
- Teaching
- Visual Arts

Required qualifications: MA or MSc or PhD or ACA or ACCA. Salary and other benefits (tax free). Remission according to qualifications and experience.

2. Requires Partners: Up to 30% Joint Educational and Management Consultancy Partners. Capital required £15,000-£30,000. Very large projects.

Apply urgently in your own handwriting and send 2 photos and photocopies of your curriculum to PO Box 2345, Limassol, Cyprus.

# CLASSIFIED ADVERTISEMENTS TO ADVERTISE IN THE THES PLEASE PHONE JANE McFARLANE ON 01-253 3000

THE TIMES  
HIGHER  
EDUCATION  
SUPPLEMENT  
Priory House  
St. Johns Lane  
London  
EC1M 4BX

# The Times puts your knowledge of computers to the test.

## THE TIMES CLASSROOM COMPUTER COMPETITION.

On September 13th we're launching a competition for schools and colleges. The competition, which runs for 12 weeks, is divided into two age groups - up to 15 and from 15 to 18 years.

Each week there is a new contest, so missing one week will not spoil your chances, and access to a computer is not necessary.

Entry is on an individual pupil basis, but because the teacher will play an important part, the main prize of a computer will be awarded every week to the school or college nominated by the entrant.

Just cut out your entry form every Tuesday from the 'Computer Horizons' pages of The Times. Then on the 5 following publication days collect the competition entry tokens to complete the form.

## 24 ATARI 600XL COMPUTERS TO BE WON.

2 Atari computers will be awarded every week for 12 weeks.

The computer, the latest model from Atari, boasts a 16K RAM memory,



expandable to 64K with a memory module, 24K ROM, 3 integrated control circuits, 256 colours, 11 graphic modes, 5 text modes, 4 independent sound voices, 3 1/2 octave range, software cartridge slot and expansion connection. 120 Individual Prizes of 'The Times Atlas of World History'. 10 atlases will be awarded every week to individual entrants.

# The Times puts computers into focus.

## REMINDER

COPY FOR CLASSIFIED ADVERTISEMENTS IN THE  
THES

SHOULD ARRIVE NO LATER THAN 10 A.M. MONDAY PRECEDING PUBLICATION



# Don's diary

Monday

In at 8.30am. First things first, wash up last Friday's coffee mugs, on with the percolator, new provisions having been purchased at the weekend. Must remember to get a refund from my officemates! Early meeting to discuss exam scripts.

In the midst of phone calls to typing agencies, our resident electrician arrives. At last, the elusive socket for our treasured microcomputer is to be installed. Where's the fuse box? Don't ask me, I only teach here. Off comes a wall-panel, down comes a strip-light, off comes the socket panel for our percolator. Our poor coffee!

Our office responds to the high-pitched noise of electric drill and the hum of hammer. We are moving into the age of high technology. The age of the micro is well and truly here, at least, once the electric socket has been installed.

Lunch comes and goes. Time for our regular meeting with our research assistant, to discuss his proposed method of analysis for our current study of management training needs of service organizations in the Birmingham area.

As we have come to expect, a very thorough job has been done. We are all pleased and agree on the next stage of the project. This should produce some very interesting and useful insights into the market with the most potential for business management education initiatives.

Finally, discuss a way of integrating the issue of organizational change into a new final year subject on our business studies degree course. Looks exciting, enabling our students to generate theories and concepts from their own experiences of change.

I wonder what the role of exams will be in the years to come. Is life really about putting anything and everything down on paper in the shortest possible time? Leave for home, looking forward to tomorrow... team-building with some artists, surely a creative experience.

Tuesday

Out in the "real" world today. Working with a colleague, in a three-star hotel, helping a group of (team-leader) from a design studio to focus on their tasks and responsibilities, and encouraging them to focus on ways in which they can develop themselves. A very stimulating experience. The "client" suggests lunch, so we stay on for a pleasant salad and gâteau.

Two o'clock comes... must dash back to the poly, to get ready to listen to, and assess, several student presentations on one of our undergraduate business workshops. By six o'clock, we've got through our quota, some quite good, others not so good.

Hopefully, they have gained from the experience, certainly the skill development opportunities are there to be grasped. Thank goodness business education is starting to emphasize skill development as well as cognitive learning.

No time to go home. As it is Tuesday, my wife and I are off to be educated ourselves, this week it's Labour II. With our first child due in early August (good timing for an academic!) Tuesday evenings are Premier League evenings at the local football.

Our expectations are unfulfilled however. A brief look at a rather grim delivery room and yet another tape of a presentation, leaves us rather flat. If this is the right word to use at this time.

We reassure ourselves that it will be all right on the night. Today has been a skills day, leading teams, making presentations and giving briefings. Developing skills is a fine work!

Wednesday

Problems start today, with decisions needing to be made about a forthcoming management training open day at which we, as the business centre within the polytechnic, are attending. After looking at quotations from the printers, seriously consider changing careers. Maybe they really do print money!

Today is just one stream of meetings: to continue development of a new subject, to discuss teaching hours and remissions for next year and to work out ways of increasing our financial allocations for staff development.

Thursday

A chance for me to receive some education by attending a staff development course, organized by our newly-formed faculty computing group, on word-processing. By four o'clock I can "mail-merge" customizing standard letters to potential clients, research respondents and others. Commit myself to put in the necessary time to really become proficient in this invaluable skill.

As with any such exercise carried out on the premises, normal everyday chaos intrudes. Spend a few minutes looking for some pithy quotes concerning the future, particularly of business and management, to form the basis of our exhibition display material.

One quote struck me as being particularly relevant: "The future isn't what it used to be." This also seems to apply to pronouncements about the future too.

Friday

Spend an hour helping one of the two HND students that a colleague and I have taken on for their placement period. With their local education authorities providing a grant extension, they have been able to work on a research project investigating the information needs of small businesses, including their awareness and evaluation of the existing sources of information and advice.

Taking students on placement has proved to be a very interesting experience; for once you actually can see day-by-day changes taking place in students who you would normally only see for one or two hours per week, and then mainly in a formal class setting. The learning opportunities available in the research process have been reinforced in my mind, as a result.

Friday afternoon draws on. Manage to fit in some time on the large-type typewriter, an invaluable machine for producing reasonably professional overhead transparencies.

Consult the week with a brief review of the Manpower Services Commission's discussion paper "Towards an Adult Training Strategy". The impetus for change seems to be there, pleased to see an emphasis being placed on skills development. On the way to the car-park, make a mental note to buy some more coffee, and some rubber gloves for all that washing-up!

Graham Kelly

The author is a principal lecturer in the department of business and management studies at City of Birmingham Polytechnic.

At half-past one in the morning in May last year, three polytechnic students - two girls and a boy returning from a party - were crossing the main road near their residence in Headingley, Leeds, when a car came down the road, hit all three and drove on. One of the girls was killed, the boy was critically injured and died in hospital, the second girl was seriously injured but will be returning to the polytechnic after a protracted period of treatment and convalescence.

The driver was traced by the police and came to trial in Leeds Crown Court nearly a year later, in April of this year. He agreed that he had had a few drinks of lager. He had not been breathalysed. He was found guilty of driving without due care and attention. He was fined £200 and banned from driving for one year.

I find it difficult writing about this because it is the kind of subject that leaves me open-mouthed with almost nothing to say. In any case I am not by nature vindictive and do not see much value in punishment for its own sake. I doubt if the relatives of the victims can possibly take such a disinterested view - or the surviving girl, who may, I suspect, be prevented from driving for life as a result of her injuries. It does seem that the law is difficult to understand - or even quite crazy.

There were, of course, mitigating circumstances. The road where the accident occurred is badly lit and there have been many protests about it. Those protesting about the road have the usual difficulty, as a result of local government reorganization and its absurdities, of not knowing whether to protest to the district council or the county council. But they have now formulated their concerns for transmission to the county and pointed out that on that stretch of road in the last four years five people have been killed, 28 seriously injured and 58 slightly injured. The county are taking the matter seriously. The work has been put on the "reserved" list of improvements, which means that it will not be given priority.

The relationship between the offence and the sentence does seem tenuous. Of course no sentence can bring back a human life which has been so suddenly terminated but I can understand the bitterness felt by some of the relatives concerned. So I have followed a number of similar incidents in the press and discussed the matter with many people who encounter such tragedies, including clergy and doctors and magistrates. Without exception they express no surprise whatever at the sentence, and usually finish my

## Mysteries of crime and punishment



Patrick Nuttgens

story for me before I have got to the punchline.

The fact is that English law is much more concerned with property than with life. Steal some money and you will certainly get a serious sentence. If you steal a great deal of money, like the Great Train Robbers, you will get a memorable sentence without much prospect of remission. To many of us they are welcome to the money as long as they don't hurt people. My reading of history suggests to me that some people have got away with vast sums and become highly respectable within a few generations.

I am told that there was a definitive case which provided the pattern of punishment for such offences against human life and that the essence of the problem is intent. Whatever may be the case in other legal traditions (and I understand that in Scots law ignorance and lack of intent are not such an excuse as they are in England) it is necessary in English law to prove that the offence was intentional if it is to carry a formidable sentence.

Without that kind of intent it is simply a matter of undue care and attention. It is an interesting principle, which does not (unfortunately for many students) apply in the case of examinations. Undue care and attention are precisely what rob them of a qualification; I doubt if many of them really intend to fail.

ship but offer all ranks a 24-hour laundry service.

Did you ever think how every naval officer always has the most immaculate white shirt? The Chinese are indispensable to the morale of the Royal Navy. For that matter, the chawwallahs are pretty indispensable to our troops in Northern Ireland, selling tea and sandwiches to exhausted patrols throughout the night.

It is privatization at its best. The chawwallah pays some £15,000 to the regimental fund for his year's monopoly and the Chinese make a very lucrative living at 20p a shirt. The National Health Service take note.

The Navy is not finding it at all easy to recruit graduate officers. They look like finding a suitable 24 year for their university cadetship entry, but they did not find enough last year. They are no longer offering the direct university cadetship, through which a sixth former went straight to university as the recipient of £6,000.

The problem was that they got other ideas at university and the Navy found itself losing some 34 per cent of its investment. Now the potential recruit has to spend a year at Dartmouth learning seamanship - part of the time being seduced by ship-board training in the Mediterranean and the Caribbean. This is followed by three years at university, with fees paid by the MoD and "pay" - not a means tested grant - of over £4,500 in the first year which rises to over £5,600 in the third year.

Studies can range from textile management to Latin and although engineering is somewhat favoured, the Navy now prefers to train its engineers itself. A new incentive is being offered of £200 each, now offered to first year university students if they will enter the Navy on graduating.

Graduate entry has been edging upwards in recent years and forms 24

It must of course be difficult to prove that you stole something without intent, unless it was the kind of psychological lapse that happens from time to time in a supermarket and even then it must be unusual to steal a large amount of money unintentionally.

Those of us who are disabled by disease without anyone being at fault have a lot of sympathy for the people who are disabled not through any fault of their own but through the misadventure of events that without any thought or intent at all lead to the most drastic consequences. There is no consolation in such cases, even if there might be more justice.

The law remains baffling. As Black Comber once remarked: "Justice may not only be done, it must be seen to be done."

Meantime, the work of the polytechnic continues. As I write this, it is dealing with the enormous number of applications that have already poured in to the place and the telephone inquiries that follow the examination results at the end of August and the beginning of September. It is of course the worst possible time for applicants. The 18 plus group is at its maximum size and is starting going down next year, slowly at first. But two factors have dramatically increased the number of applications.

The universities have established target figures after draconian cuts from the University Grants Committee, a considerable number of school leavers who might otherwise have crept in to a university are now heading towards the polytechnics. And many girls to stay at school and take a level. What is less easy to know is the degree to which students are opting for vocational courses in the hope of employment.

Leeds Polytechnic this year has had 14,000 applications for 2,000 full places and is probably not unique. That is 23 per cent up on last year. Courses like accounting, business studies and law attract more than a thousand applications each, but do does not know how many applicants have also applied to every other place. Unsurprisingly in a country devoted to anything except technology, the few vacancies are in branches of engineering. But even that area is very different from what it was a few years ago when courses were seriously under-sold.

The case for a polytechnic clearing house parallel to the Universities Central Council on Admissions is quite clear and overdue. Unfortunately it seems that it is unlikely to be in operation before 1986.

As Home in effect showed, alongside any accepted scientific theory there must always be infinitely many rival theories that are all on the face of it, as equally successful empirically as far as all available evidence is concerned. My claim is that in order to avoid being stifled by this plethora of alternative theories, science is

So the Navy turns to the public schools. Some 35 per cent of the Navy's recruitment comes from comprehensive schools, but the independent school intake has steadily risen from 25 per cent in 1973 to 35 per cent today.

But I am not convinced that the image of the naval officer as a southern, public school smoothie reflects all that badly on the Navy's recruitment system.

The recruitment effort is considerable. The Navy has five regional recruiting centres and despite recent cuts reductions still has over 450 career information officers. What is interesting is that it finds recruits much easier south of the Wash.

Now this in part may simply be related to the fact that there are many more naval establishments in the south and little of a Navy presence in the Midlands. But it is the view of Navy recruiters that the further north one goes the more young people are in their outlook and home life. And the greatest self-confidence is displayed by public school boys.

If it is worth a thought that even when officers are recruited from the north, they have married a northern girl, the family stays determinedly in the north, despite a posting, say, to Portsmouth. Balanced recruitment is not made any easier by the attitude of certain Labour councils. The Sheffield education authority, for example, refuses to allow the Navy access to its schools; an interesting reflection on those politicians whose stock-in-trade is harping on the lack of job opportunities.

## LETTERS TO THE EDITOR

### Popular fallacies concerning Popper's philosophy

Sir, - David Papineau's brilliantly written review "Popular appeal of Popper's message" (THES, September 9) gets some things right, some disastrously wrong.

He is right to hold that Popper's philosophy of science fails to solve its two basic problems - the problems of induction and demarcation. Papineau's two reasons for holding this are however hopelessly inadequate.

First, in sharp contrast to what Papineau claims, Popper does give reasons why "corroborated" scientific theories deserve to be preferred to uncorroborated or unscientific theories, when it comes to action. When we act, the best that we can do, according to Popper, is to choose theories which have survived best of the most severe criticisms: these are corroborated scientific theories. Perhaps this attempt of Popper to provide a rationale for preferring corroborated scientific theories when it comes to action is inadequate; but it exists (and, on the face of it, makes good intuitive sense). Papineau is thus quite wrong to say that "Popper, as a good Humean, can give no answer" to this question of a rationale.

Second, Papineau is quite wrong when he claims that Popper's proposed solution to the problem of demarcation is unacceptable in that Kuhn, Feyerabend and Lakatos have shown that scientific theories cannot be decisively refuted empirically. Popper has repeatedly stressed throughout his writings, from *The Logic of Scientific Discovery* to *The Philosophy of Language*, that his falsificationist criterion for demarcation science from non-science does not require that scientific theories can be known to be false with certainty on empirical grounds. Popper has himself argued this cogently against this view - sometimes called *naïve falsificationism* - and indeed many of the arguments of Kuhn, Feyerabend and Lakatos against this view come from Popper in the first place, as these authors would readily admit.

The fundamental inadequacy of Popper's proposed solution to his two basic problems is, I suggest, quite different from, and much more important than, these spurious inadequacies discerned by Papineau. It arises from Popper's failure to appreciate, and indeed his rejection of, the crucial point, repeatedly stressed by Einstein, that science cannot proceed without making the metaphysical assumption that the universe is comprehensible in some way or other.

As Home in effect showed, alongside any accepted scientific theory there must always be infinitely many rival theories that are all on the face of it, as equally successful empirically as far as all available evidence is concerned. My claim is that in order to avoid being stifled by this plethora of alternative theories, science is

obliged to assume that the universe is comprehensible in some way or other, preference being given to those empirically successful theories which best comply with this assumption of comprehensibility.

Thus two distinct kinds of considerations govern choice of theory in science: (1) empirical considerations, and (2) philosophical considerations, the latter being the simpler or more basic.

It is however basic to Popper's philosophical work to combat the idea that science makes substantial assumptions about the world on non-empirical grounds. Popper seeks to defend what he calls "the principle of empiricism," which asserts that in science, only observation and experiment may decide upon the acceptance or rejection of scientific statements, including laws and theories" (*Conjectures and Refutations*, p. 54). In *The Logic of Scientific Discovery* he does this by arguing, in effect, as follows.

In selecting theories solely by means of empirical considerations, we are entitled to prefer, other things being equal, theories most open to being selected in this way; we are entitled, that is, to prefer highly falsifiable theories. But the more falsifiable a theory is, the simpler (or more comprehensible) it is, and vice versa. Thus in giving preference to simple theories we do not at all presuppose non-empirical grounds that the world is simple (or comprehensible): quite the contrary, we allow empirical considerations alone to determine our choice of theory in the most efficient, impartial manner conceivable.

For this argument to work it is essential that increasing falsifiability invariably involves increasing simplicity, and vice versa. But this just is not the case. One can readily increase the falsifiability of a theory by making *ad hoc* additions to it, which annihilate utterly the "simplicity" of the theory, in science. Given any simple theory, there will always be infinitely many rival complex theories, all equally falsifiable.

Simplicity, as understood in science, has to do with what a theory asserts about the world, and not just with how much the theory asserts (empirical content or falsifiability). Thus in giving preference to simple theories on non-empirical grounds science does in effect persistently make a substantial assumption about the nature of the world, to the effect that the world is

simple or comprehensible rather than complex and incomprehensible.

Popper's principle of empiricism - together with his proposed solutions to the problems of induction and demarcation which presuppose it - must be rejected. Popper's philosophy of science fails because it rejects the central philosophical point of Einstein's scientific work - a somewhat ironic conclusion to reach given that Popper himself has claimed for his philosophy of science no more than that it makes explicit what is implicit in Einstein's contribution to science.

Papineau is quite right to point out the absurdity of creating a dogmatic Popperian school of thought, complete with scholastic and emotional denunciations of criticism. He is wrong, however, in my view, in his assessment of the importance of Popper's work. I am in agreement with those who hold that Popper's work constitutes a major contribution to philosophy.

His criticisms of profoundly influential doctrines - such as inductivism, justificationism, positivism, instrumentalism, idealism, relativism, historicism and various forms of irrationalism and scholasticism - are in my view decisive and of great general importance. He has made major contributions towards solving major philosophical problems which have baffled people for centuries; and if he has not always definitively solved his problems, nevertheless his contributions have transformed the entire problem-situation, so that our whole approach to philosophy after Popper has been changed.

No one who has understood Popper could conceivably continue to pursue philosophy as a specialized academic discipline, concerned primarily with the analysis of concepts, divorced from other concerns. The fact that so many academic philosophers do continue to do just this indicates in my view that among academic philosophers Popper's message has been only very poorly understood.

What is for me especially striking about Popper's work is the way in which the solutions he proposes to his philosophical problems have fruitful and wide-ranging implications for all kinds of activities and concerns: for science, for politics, for education, for religion, for music and art. I for one criticize Popper's views not in order to belittle or annihilate them, but in an attempt to discover how they may be fruitfully developed and improved, if possible in the kind of way that Popper himself developed his views. This is the challenge that Popper's work throws out to his reader.

Yours sincerely,  
NICHOLAS MAXWELL  
Lecturer in philosophy of science,  
University College, London.

**Postgraduate protection**  
Sir, - I would like to comment on the lack of protection for postgraduate students in universities if they have complaints about their type of supervision or about their supervisor. Having done two degrees by research, I have experienced most satisfactory supervision in one instance and minimal supervision in the other instance.

In the latter case, the supervisor did not keep abreast of the project ideas and was really only aware of the objectives of the project upon the presentation of a draft of the thesis contents in the fourth year. Although the university's book of regulations for higher degrees stated that a supervisor should devote about one hour per week to each research student, I could not obtain an appointment until two or three weeks afterwards.

It is also disheartening that it is left so much to the supervisor's discretion whether a student is given any credit for higher work when the findings of his/her project are presented by a supervisor at a conference.

Unfortunately, the National Union of Students does not represent postgraduate students very well or willingly as they are mostly concerned with undergraduate student affairs. The National Union of Students Association has such a small membership that it is at a disadvantage.

Yours faithfully,  
L.S. WILLIS  
177 Woodlands Road,  
Sparkhill, Birmingham.

**Transport studies**  
Sir, - I read with interest the article entitled "Demand accelerates for transport studies" (THES, September 2). It seems to support the case for undergraduate courses in the broad field of transport and in so doing is in sympathy with the philosophy which led to the establishment of an undergraduate degree course in transport-

engineering which commences in the Napier College this month.

This, the first undergraduate degree course of its kind in Britain, has already been reported by Scottish Television, BBC radio, Radio Forth, and *The Scotsman*.

Yours faithfully,  
R. CORP  
Napier College, Edinburgh.

**Pressure for peace**  
Sir, - It will be interesting to see if the Academic Council for Peace and Freedom (THES, September 9) is a genuine pressure group for disarmament or simply anti-unilateralist. Whenever I engage with unilateralists I find them arguing cogently and with conviction for multilateral disarmament. They are also prepared to take the first step. Whenever I have tried to discuss multilateral disarmament with British unilateralists they only seem interested in defending the arms race. Let us hope that the ACPF will change all this.

Yours sincerely,  
ROBERT MOORE  
Department of sociology,  
University of Aberdeen.

**Letters for publication: should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.**

### Preserving tenure within mergers

Sir, - It is clear that a battle has now commenced within the University of London to preserve tenure not merely for existing staff but for those to whom the inheritance of our university will fall long after the present generation of teachers has passed from the scene. It is also clear that my friends and I at Royal Holloway College, together with our colleagues at Bedford College, are in the forefront of this battle.

It is a matter of great pride that the Association of University Teachers members at both colleges, and both academic boards, have taken a stand not in defence of their own contracts (which, as the draft Bill to merge the two colleges now stands, would be preserved in any case) but in defence of the principle of tenure. It is a matter of the deepest regret that the working party established by the two college councils has chosen to capitulate to the opinions of the Department of Education and Science expressed at third hand.

If the Government wishes to modify tenure at the new institution at Egham by inserting a redundancy provision, let it bring forward such a proposal if and when the Bill reaches Westminster. But I, for my part, believe that tenure is less likely to be breached by pressure from without than by betrayal from within.

Yours faithfully,  
GEOFFREY ALDERMAN  
Senator of the University of London;  
president of the Royal Holloway College local AUT; chairman of the London committee of the AUT.

Sir, - I was amazed to read (THES September 9) that the vice chancellor of London University, Professor Quirk, has written to the Committee of Vice Chancellors and Principals categorically stating that the statutes of the new merged Bedford and Royal Holloway colleges will have a redundancy clause written in to it.

If true this would seem to me to be a gross interference in the autonomy and democratic deliberations of the two colleges. Absolutely no decisions have been taken about this matter.

The two academic boards and the two Association of University Teachers branches of the colleges strongly support tenure, and are implacably opposed to the introduction of any redundancy clause, which would among other things weaken a new institution in any new round of cuts as compared to other London colleges. Perhaps that is what the vice chancellor has in mind.

Two out of three college working parties set up to look at the new statutes have recommended against a redundancy clause as indeed has Royal Holloway College council. The matter is now being intensively discussed by Bedford College's governors and full discussions will be taking place with all the staff concerned this autumn.

I very much regret any attempt to preempt the proper decision making procedures of the two institutions and call on the vice chancellor to publish his letter and clarify his own personal position.

Yours sincerely,  
BILL STEPHENSON,  
Vice-president of Bedford College AUT.

**Pressure for peace**  
Sir, - It will be interesting to see if the Academic Council for Peace and Freedom (THES, September 9) is a genuine pressure group for disarmament or simply anti-unilateralist. Whenever I engage with unilateralists I find them arguing cogently and with conviction for multilateral disarmament. They are also prepared to take the first step. Whenever I have tried to discuss multilateral disarmament with British unilateralists they only seem interested in defending the arms race. Let us hope that the ACPF will change all this.

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### Union View

## Ulster: the making of change

The merging of Ulster Polytechnic and the New University of Ulster are regularly told in the columns of this newspaper can and should herald a new era in higher education. We are promised the fusing of the best qualities from both sides of the binary line. The new institution should be a blueprint for the next century: an efficient organization that responds quickly to the needs of its community, providing impetus for commerce, industry and the arts and relating meaningfully to its environment.

I was much concerned, therefore, when a member of the NUU, sharing an interview on radio with me, commented that he expected that within a few years the new university would revert to being a traditional university. It was sad to hear that the present idealism was already being seen as a mere passing fashion. We must not lose the game before we have begun it. The APT believes that the ideal is attainable. What is important is to question closely how the ideal can be built into the basic structures of the new institution so that the "polytechnic ethos" cannot simply be eroded away. This should be one of the central preoccupations of the steering group. It demands an open, creative approach to considering the structures of the new institution. A management structure that works in the traditional university may not be right for an institution with different aims; likewise a management structure that has worked in a polytechnic giving CNAAs degrees may not be right for an autonomous institution.

Already it is clear that there are constraints on change. The Privy Council insists on certain guidelines being met for the establishment of any new university. There must, for instance, be a majority of professors in any elected group on the senate. The APT's suggestions for a more wide-ranging representation with a more democratic distribution of seats was unacceptable, because the suggestions would not conform to the rules.

## APT

Another sensitive area is the status and pay of professors and heads of departments. The traditional university rewards individual academic achievement with the establishment of chairs. The polytechnic, in contrast, looks for a combination of assets in its choice of heads of departments.

The new university may well need to establish a broader criterion for its professors. The Leverhulme publication *Excellence in Diversity* rightly stresses the need for higher education to turn out graduates who have the ability to work in teams with others, to contribute to group thinking and to communicate effectively. If these qualities are the ones that society requires, then should we not also be looking for such qualities in the leaders of university departments?

A radical university is likely to require a different power structure from the traditional arrangements. The natural, best-loved course of the existing structure is the single honours degree. It fits neatly into the power system. Combined degrees and especially cross-faculty degrees carry with them problems of delicate relations with possibly threatening groups.

The Leverhulme report recognizes that the country needs a new style of graduate. That implies a need not just for new shorter courses which may be only a superficial answer to the problem but new-style universities where decision making is lodged in an appropriate power structure. The Ulster merger gives us the opportunity to seek out such a structure. If we fail, and allow the new institution to drift back to being a traditional university we fail not only to meet the needs of Ulster but also to meet the needs of the whole of United Kingdom society.

Heather Eggins

The author is national vice chairman of the Association of Polytechnic Teachers and chairman of the Ulster Polytechnic branch.